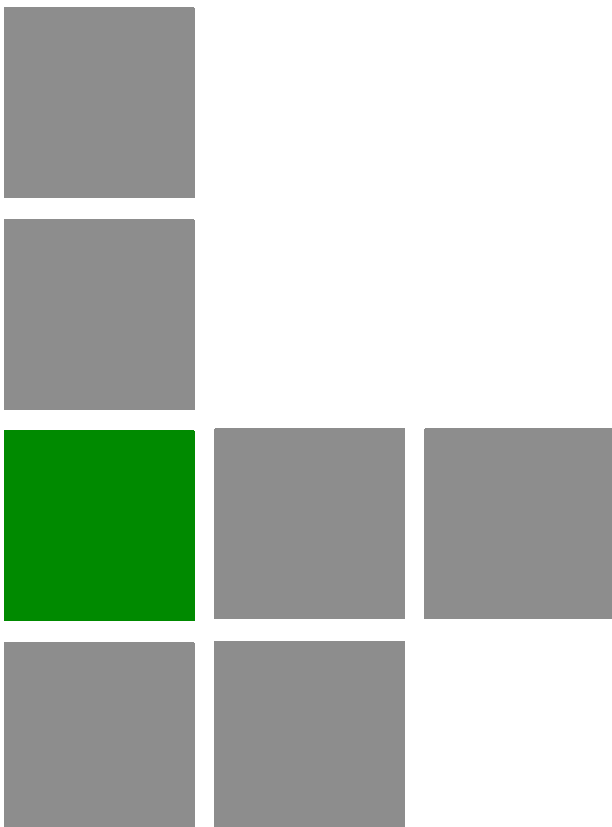


AlvariSTAR



Installation Manual

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About This Manual

This manual describes how to install the AlvariSTAR software and includes the following chapters:

- Chapter 1 - Introduction to AlvariSTAR Installation: Describes the AlvariSTAR architecture and the minimum system requirements.
- Chapter 2 - Server Installation and Upgrade: Windows OS: Describes server and device driver installation and upgrade on machines running Windows OS.
- Chapter 3 - Server Installation and Upgrade: Solaris OS: Describes server and device driver installation and upgrade on machines running Solaris OS.
- Chapter 4 - Client Installation: Describes software installation on Client machines.
- Chapter 5 - System Maintenance: Describes procedures necessary for maintaining the system.
- Chapter 6 - Uninstalling AlvariSTAR: Describes how to remove AlvariSTAR from machines running either Windows or Solaris operating systems.
- Appendix A - Migration Paths: Describes the migration paths available for the latest AlvariSTAR release.
- Appendix B - Migrating from AlvariSTAR 3.5 to AlvariSTAR 4.0/4.1: Describes the differences in security mappings, behavioral changes and security rulings between the two versions.

This manual uses the following conventions:

- Commands appear in special font: e.g., `mkdir/opt/AlvariSTAR`
- Names of buttons appear in Bold and names of windows in italics: e.g., Click **Next**. The *License Agreement* window is displayed.
- <Text> means that an actual value is to be entered instead of the text in between the angled brackets.

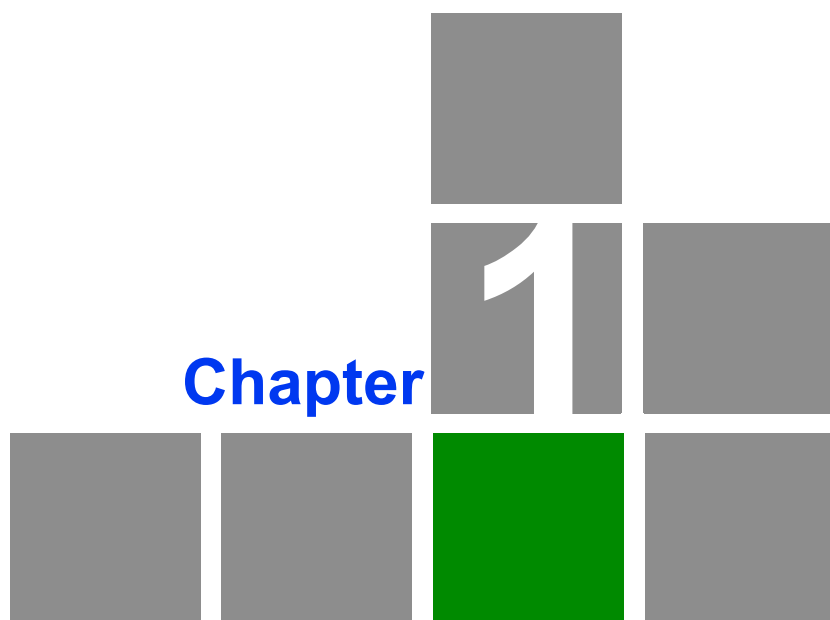
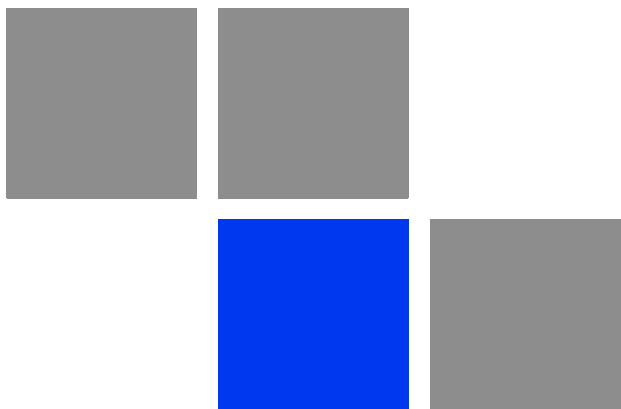
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Chapter

Introduction to AlvariSTAR Installation

In This Chapter:

- [“STAR Management Suite Overview” on page 3](#)
- [“AlvariSTAR Overview” on page 4](#)
- [“AlvariSTAR Architecture” on page 5](#)
- [“Deployment Scenarios” on page 8](#)
- [“Hardware, Operating System, Database and Capacity Information” on page 9](#)

1.1 STAR Management Suite Overview

Alvarion's STAR Management Suite offers complete and comprehensive management solution for ensuring the successful deployment of WiMAX services. The Alvarion STAR Management Suite offers a set of carrier class management tools, each tool designed to fulfill a certain management purpose.

The STAR Management Suite includes:

- **AlvariSTAR** - Carrier-class Management System for managing Alvarion's WiMAX Base Stations.
- **StarACS** - An Automatic Configuration Server (ACS) for managing end-user Fixed and Nomadic devices (CPE) based on TR-69 protocol. StarACS is relevant only for WiMAX 16e Networks.
- **StarQuality** - Performance monitoring system for optimizing the WiMAX network.
- **StarReport** - Powerful report generator for generating network inventory reports.

1.2 AlvariSTAR Overview

AlvariSTAR is a comprehensive, carrier-class network management system (NMS) for managing Alvarion's broadband wireless access networks. AlvariSTAR provides a one-stop-shop for all WiMAX network management needs. Presenting topology, fault, performance, configuration and security management - all with the same uniform graphical user interface.

AlvariSTAR is designed to address the different needs of network technicians, those in the field, and those in regional and national network operation centers.

1.3 AlvariSTAR Architecture

AlvariSTAR focuses on the Element Management System (EMS) and Network Management System (NMS) layers of Telecommunication Management Networks (TMN) to provide **FCAPS** management functions:

- **Fault Management** - Alarm observation including alarm and state report, correlation, suppression, alarm sorting, filtering and reports, alarm log, summarized alarms and acknowledgment, color coding and forwarding to upper level management systems.
- **Configuration Management** - Device discovery and scheduled periodical updates, hierarchical location and contacts management, single and multiple unit configuration and software upgrade, services provisioning, unit and board configuration, telephony and data service provisioning, off-line configuration, logical and geographical topology views and inventory management.
- **Performance Management** - AlvariSTAR Real Time performance monitoring enables to monitor various counters showing statistics of communication between the device and defined Policy Function server. In addition, the task manager can retrieve 15min PM/TM file directly from the device and export them to a folder.
- **Security Management** - AlvariSTAR and subscriber security facilities including management users, user groups, functional permissions and passwords for multi-level authorizations and access protection.

AlvariSTAR's multi-layer archi-functional architecture comprises an infrastructure layer providing common functionality including inventory, faults, topology, log and reports, SW download, performance monitoring and security. The Device Drivers layer enables to add management, configuration and service provisioning capabilities that may differ among various Alvarion product families. The common infrastructure can be integrated with either one or several Device Drivers, according to need.

1.3.1 Layering Architecture View

The AlvariSTAR System architecture was designed to provide flexible architecture distribution capabilities to be spanned over three logical and physical tiers as presented in [Figure 1-1](#). The tree layers are:

- Front-End Layer implementing the presentation
- Back-End Layer implementing the FCAPS business logic
- Mediation Layer implementing the communication with the NEs.

This ultimate architecture configuration model is suitable for managing large network scale, however for small networks the tree layers can be configured on one single server instance.

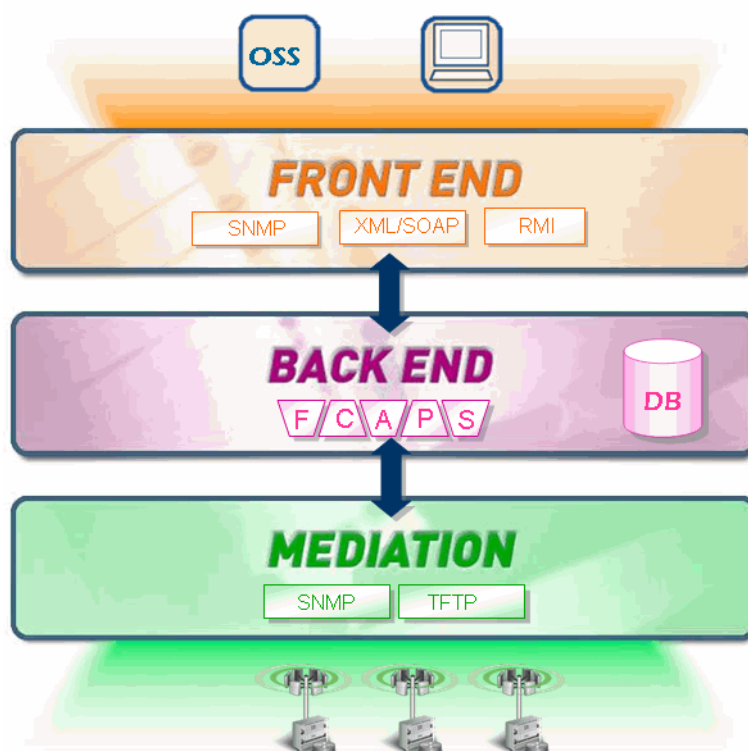


Figure 1-1: AlvariSTAR Architecture

1.3.2 Logical Components View

The AlvariSTAR application contains the following internal and external logical components:

- **JBoss Application Server:** Java Enterprise Edition Application Server that hosts the AlvariSTAR server-side application.
- **AlvariSTAR:** The server-side application containing the following functionalities:
 - » **Infrastructure** has the following components:
 - ◇ **FCAPS Business Services:** Manages the Fault, Service Configuration, Network Topology, Alarms, Security and BS Configuration business logic.
 - ◇ **Presentation Layer:**
 - Internal APIs:** Exposes the whole FCAPS functionalities and handles security access control, transactions and notifications related to the Administrator northbound interfaces.
 - External APIs:** Destined to OSS integration purpose, this layer publishes limited FCAPS functionalities to external northbound OSS applications.
 - ◇ **Security:** Defines and manages user permissions and access rights for system users.
 - » **Device Drivers:** Performs NE business rules that are device specific. This can be either working with various MIBs, BS types, protocols (SNMP, TFTP, CLI) or performing different Traps and Alarms logic (Filtering, Priority, Queuing, etc.).
- **AlvariSTAR Client Application:** Rich client that uses the Internal API of the Presentation Layer to access the entire AlvariSTAR functionality.
- **OSS:** Northbound applications that connect to the AlvariSTAR server.
- **Network Elements:** Any manageable network element (BS, μ BS, CPE, etc), that is supported by the device drivers.
- **LDAP:** Used by the Security Infrastructure component.
- **Database:** The RDBMS used by the system for data persistence.

1.4 Deployment Scenarios

AlvariSTAR is designed to work in networks of varying sizes. You can customize the system to work as an entry-level single server for a small deployment, or you can scale it out to manage a more complex deployment. AlvariSTAR's flexible design enables you to continuously change and scale the deployment as your network needs grow.

- **Entry Level Deployment** – The ideal solution for small network environments. In single server deployment, all sub-systems are installed on a single machine. The client application can be installed on additional computers to provide management access to the system from a number of locations. The client application is only supported on Microsoft platforms.
- **Large Networks Deployment** – The optimized solution for a large number of network elements. Can be deployed on Microsoft Windows, Sun Solaris or Linux operating systems together with the Oracle database. The underlying Oracle database can be deployed on the same server as AlvariSTAR (internal) or can reside on a different host (external). In cases where the Oracle is deployed on a separate host, the host hardware specifications should be the same as those of a stand-alone host.



NOTE

The application servers and database server must all run the same type of operating system. Combinations of different operating systems are not supported.

1.5 Hardware, Operating System, Database and Capacity Information

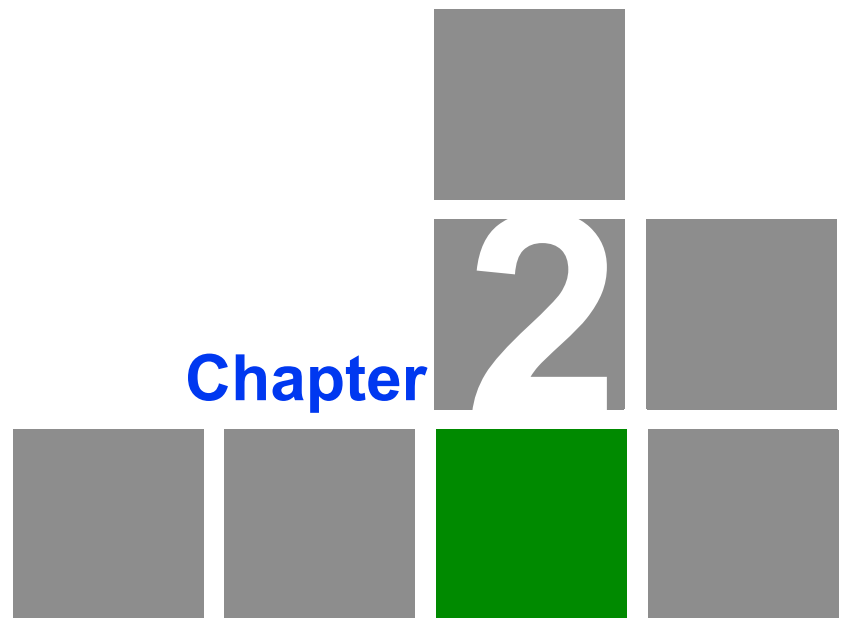
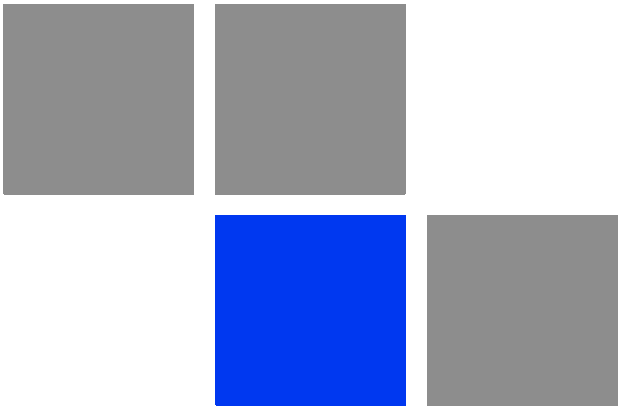
AlvariSTAR Server Configuration				
Description		Demo/Trial/Small Network	AlvariSTAR Windows 2003/2008 Server Solution	AlvariSTAR Unix Based Server Solution
Capacity	BreezeMAX 4Motion 16e	25 BSTs, 5 concurrent Clients	1000 BSTs	1000 BSTs
	BreezeMAXFDD 16d, TDD 16e-ready	25 BSTs and 5,000 SUs, 5 concurrent Clients	1000 BSTs	1000 BSTs
Hardware		Quad Core 3.16 GHz, 4 GRAM, 120 GB disk	1 x Sun Fire x4150 x4150 spec: Two Quad-Core Intel Xeon X5460 processor 3.16 GHz, 8GB RAM, 4 x 146GB disk	1 x Sun Fire x4150 x4150 spec: Two Quad-Core Intel Xeon X5460 processor 3.16 GHz, 8GB RAM, 4 x 146GB disk Quad Core 3.16 GHz, 4 GRAM, 120 GB disk
Operating System		Win Server 2003/2008 Standard Edition English	Win Server 2003/2008 Enterprise Edition English	Solaris 10 English, latest Linux distribution (RedHat, Fedora, etc.)
Database		MySQL 5.1	MySQL 5.1 or Oracle 10g R2 Note: Oracle internal database not supported on Win Server 2008	Oracle 10g R2
Installation Configuration		AlvariSTAR application and MySQL are installed on the same machine	AlvariSTAR application and MySQL are installed on the same machine AlvariSTAR application can reside with Oracle database on the same machine or can connect to external centralized Oracle server	AlvariSTAR application can reside with Oracle database on the same machine or can connect to external centralized Oracle server

AlvariSTAR Client	
Hardware	1 CPU, Core2 Duo 2.4GHz, 2 GRAM, 80 GB disk
Operating System	Windows XP Pro English SP2 Windows XP SP2 English Windows Server 2003 R2 English Windows Vista English



NOTE

- Installing the proper operating system and external database is mandatory and is a prerequisite for AlvariSTAR installation.
- AlvariSTAR will continue to support existing UNIX servers such as: Sun Fire v240, v440 and T2000, but with limited capacity.
- When using the external deployment, the Oracle database and the MySQL database must be acquired and installed separately.



Chapter 2

Server Installation and Upgrade: Windows OS

In This Chapter:

This chapter describes how to install or upgrade the AlvariSTAR Server Application and relevant device driver on a Windows operating system.

- [“Overview” on page 13.](#)
- [“AlvariSTAR Server Installation” on page 14.](#)
- [“Running AlvariSTAR” on page 45](#)
- [“Upgrading an AlvariSTAR Server Installation” on page 49](#)

2.1 Overview

The AlvariSTAR installation package installs the infrastructure and one or more device drivers, allowing connectivity to the different network elements. The package also includes an Oracle database installation kit. In case the deployment uses the embedded Oracle database on the same host, the "internal" database installation type should be selected. In case of a non-embedded database usage, the "external" database installation type should be selected. The AlvariSTAR infrastructure and at least one device driver must be installed.

The device driver enables management, configuration and service provisioning capabilities for a particular device.

Before starting installation, check whether AlvariSTAR has been installed previously, and if so which version is installed. Also check which device is in use. It is possible to upgrade the device driver or install a driver for a new device at any time.

- The install wizard searches for existing AlvariSTAR installations. If no previous installation is detected the system performs a full installation. The installation program installs all necessary system components for the AlvariSTAR infrastructure. If an existing AlvariSTAR installation is detected, make sure that the migration path is kept in accordance with [Appendix B](#) of this manual.



NOTE

- All AlvariSTAR, Device Driver or Upgrade installation steps are saved in a log file <INSTALL_ROOT> server-install.log.
- All LDAP installation steps are saved in a log file <INSTALL_ROOT> ldap-install.log.

2.2 AlvariSTAR Server Installation

Before beginning the AlvariSTAR installation, you must check that you have all the necessary information and that you have performed all the tasks as outlined in [Section 2.2.1](#).

2.2.1 Pre-installation Tasks

2.2.1.1 Check-list

- The computer on which the server is installed must meet minimal hardware and software requirements. For further information refer to the Release Notes.
- The computer on which the AlvariSTAR Server is installed must be dedicated to running AlvariSTAR.
- For large network configurations using “internal” Oracle setups, disk partitioning is most recommended (see [Table 2-1](#)).
- For “external” Oracle database setups, the database must be installed,

Table 2-1: Recommended Partitioning when Oracle “Internal” Setup Is Used

Physical Disk	Volume	Setup
Physical disk 1	Volume 1	OS, AlvariSTAR SW, Oracle SW
Physical disk 2	Volume 2 - RAID 0	Oracle tablespaces
Physical disk 3		
Physical disk 4	Volume 3	Oracle redo logs

configured, up and running and open for connections (see [Section 2.2.1.3](#)). In addition, you must contact the Oracle DBA and:

- » Verify the Oracle server URL (IP, port, SID)
- » Verify the Oracle system password
- » Define the name for the AlvariSTAR schema. Follow the Oracle user policy.
- » Define the password for the AlvariSTAR schema. Follow the Oracle password policy.

- When using a MySQL “external” database, MySQL 5.1 or higher must be running on the computer on which the server is installed (see [Section 2.2.1.2](#)).
 - » Verify the MySQL server port. (The default is 3306.)
 - » Verify the MySQL system password.
- Contact the system administrator and verify the following information:
 - » **Folder location:** Server installation requires 1.3GB disk space. Verify in which folder the software will be installed.
 - » **Server IP:** For systems with more than one NIC (network identity card) installed, verify the IP address on which the server will listen to client requests.

2.2.1.2 Installing and configuring the MySQL Database

- 1 Log in to the system with administrator privileges.
- 2 Download the latest version of MySQL Server (5.1 or higher) and run the **Setup Wizard**.
- 3 Select the **Custom** option in the *Setup Type* window.
- 4 Select the **MySQL Server** icon from the list in the *Custom Setup* window and click **Change**.
- 5 Change the destination folder to install the MYSQL Server in a different partition from that on which the operating system is installed.
- 6 Select the **MySQL Server Datafiles** icon from the list in the *Custom Setup* window and click **Change**.
- 7 Change the destination folder to install MYSQL Server Datafiles in the same folder on the MySQL Server was installed..
- 8 Once MySQL has been successfully installed follow the instructions in the **MySQL Server Instance Configuration Wizard** to configure the MySQL Server server instance.
- 9 Select the **Standard configuration** option and click **Next**.. This will use a general purpose configuration for the server that can be tuned manually.

- a Set the following Windows options and click **Next**:
 - ◇ Check **Install As Windows Service**
 - ◇ Check **Launch the MySQL Server automatically**
 - b Set the following security options and click **Next**:
 - ◇ Check **Modify Security Settings**
 - ◇ Enter the **root password** and maintain for future use
 - ◇ Uncheck **Enable root access from remote machines**
 - c Press **Execute** to start the configuration.
- 10 Once the service is up and running, select *Control Panel—Administrative Tools—Services—MySQL51* and stop the MySQL service.
 - 11 Using a text editor, open the my.ini file located in the folder in which MySQL was installed and modify the following parameters:


```
innodb_buffer_pool_size= 500M (default=47M)
      innodb_additional_mem_pool_size=12M (default =2M)
```
 - 12 Restart the MySQL service.

2.2.1.3 Installing and Configuring the “External” Oracle Database

The Oracle Database Configuration procedure consists of:

- 1 Installing the Oracle software on the Oracle DB Server, according to the instructions provided by Oracle. The exact version number for the Oracle DB Server release is provided in the release notes.
- 2 Performing additional configuration instructions as described in this chapter.

2.2.1.3.1 Installing and Running the Oracle Database

- 1 Install and create an Oracle DB to be used by AlvariSTAR.
- 2 Configure the **Oracle TNS** service using Oracle Net8 Configuration Assistant or by manually editing the %ORACLE_HOME%/network/admin/tnsnames.ora file. Make sure that the local service name for the database is identical to the SID (System Identifier) of the database on the database server.
- 3 On the database server, check the Oracle initialization parameters in the file init<InstanceSID>.ora. AlvariSTAR usually works with the default database settings. For larger deployments and fine tuning alter the

initialization file and make sure that the minimums below are met. We recommend checking all modifications to these files with your Oracle DBA.

```
Maximum SGA Size* (MB) = 3200 MB
```

```
processes =150
```

```
open_cursors = 1000
```

NOTE

The maximum SGA size should not exceed 70% of the physical memory.

2.2.1.3.2 Testing Oracle Client Connectivity

The AlvariSTAR installation CD includes a java utility (oracleConnectionTest.zip) that can ensure that there is a connection available between the AlvariSTAR host and the Oracle host. The howTo.txt file explains how to use this utility.

2.2.1.4 Configuring Network Ports

The following ports between the server machine, client machine, third party tools and managed network equipment must be open.

Table 2-2: Network Ports Configuration

Use	Port	Protocol	Direction	Remark
App server and managed equipment	161	SNMP	Outbound towards NE	
App server and managed equipment	162	SNMP	Inbound from NE	
App server and managed equipment	69	TFTP	Outbound towards NE	The TFTP request uses port 69 when going from the server to the managed equipment. The response from the equipment can use ANY port. This should be taken into account when hardening the servers.
App server for northbound of SNMP traps	1610	SNMP	Outbound towards OSS	
App server for northbound service operations	8080	SOAP	Inbound/Outbound	This port is configurable. It can be changed by editing the file: <AlvariSTAR Root\ jboss\server\nms\deploy\jboss-web.deployer\server.xml
App server and Client	1098	RMI	Inbound/Outbound between client and server	
App server and Client	1099	RMI		
App server and Client	4444	RMI		
App server and Client	8093	RMI		
AlvariSTAR client and managed equipment	23	TELNET	Outbound between client and NE	If the "Cut through" operation is in use, the AlvariSTAR client and managed equipment must have IP connectivity on port 23.

Table 2-2: Network Ports Configuration

Use	Port	Protocol	Direction	Remark
NetBIOS	137	netbios-n	Inbound/Outbound	
LDAP Server	10389	LDAP	Inbound/outbound between the AlvariSTAR server and the LDAP server	
App server and Oracle server (if exists)	1521	SQLNet	Inbound/outbound between AlvariSTAR and database server	Oracle client configured port. Default: 1521
MySQL database (if exists)	User def (default 3306)	MySQL	Inbound/outbound between the server and the database	This port is set during the MySQL installation. Another port can be selected.

2.2.1.5 Configuring the Network

AlvariSTAR must be installed on a machine with a valid network connection and a valid IP address.



IMPORTANT

As the license mechanism includes the IP and MAC address, it is essential that the IP address is a static address.

AlvariSTAR supports multiple NIC servers. Before starting installation, the user must choose which NIC the server will use to communicate with the clients. Due to the limitations of Windows, once selected, the NIC must be the first connection to appear in the connection list as it appears in the Windows operating system.



To set the NIC order:

- 1 From the Windows Start menu, select *Control Panel—Network Connections (Network and Dialup Connections)*.
- 2 Select *Advanced Settings* from the Advanced menu in the toolbar at the top of the window.
- 3 Use the arrows to move the network card that you have selected to the top of the connections list in the *Adapters and Bindings* folder and click **OK**.

2.2.2 Installing AlvariSTAR

- 1 Log in to the computer on which the installation is to be performed as a user with administrator privileges.
- 2 To begin the installation, double-click the **setup.exe** file directly from the AlvariSTAR Install CD. (The setup.exe file can be found in Disk1.)



CAUTION

When copying or downloading the installation kit to a local disk, make sure you copy the entire content of the kit - not only the setup.exe file.

InstallAnywhere is activated.

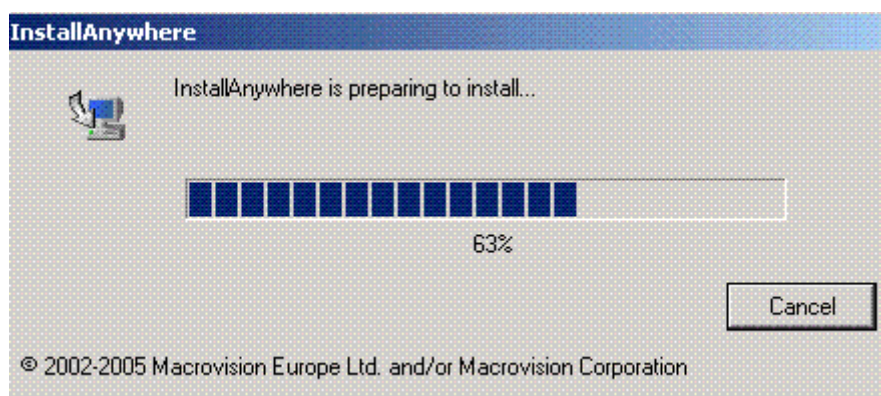


Figure 2-1: InstallAnywhere Initialization

- 3 Wait until InstallAnywhere has completed the initialization. An *Introduction* window is displayed.



NOTE

During installation, a console screen is displayed in the background behind the installation windows. This screen does not require user intervention and should be ignored.

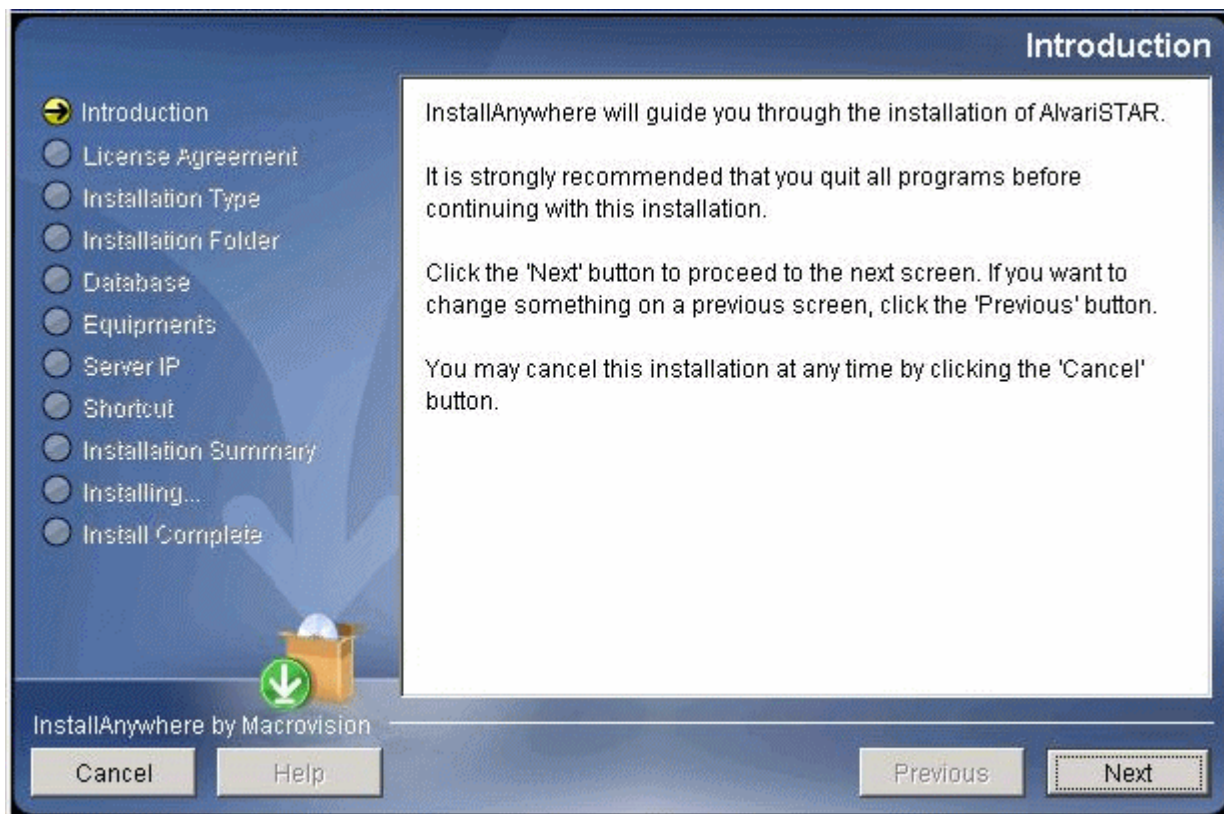


Figure 2-2: Introduction Window

- 4 Review the information and click **Next**.

The *License Agreement* window is displayed.

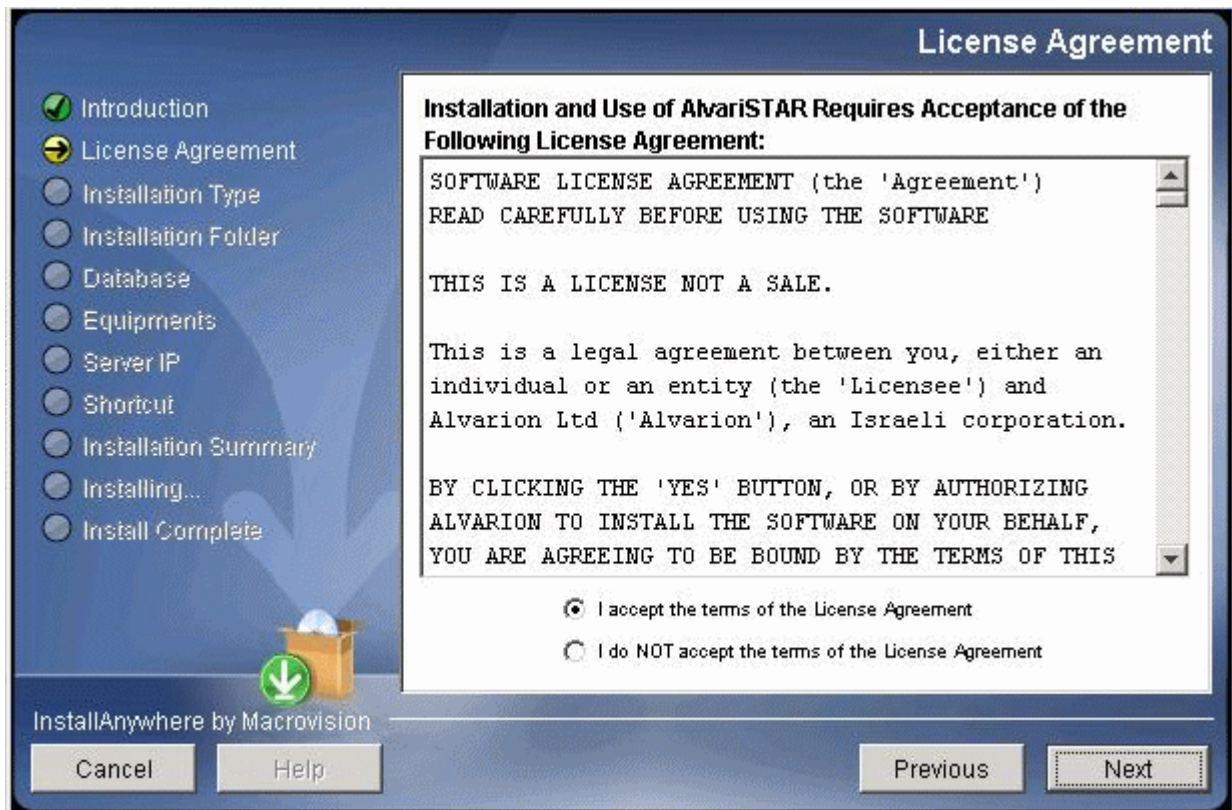


Figure 2-3: License Agreement Window

- 5 Accept the terms of the license agreement and click **Next**.

The wizard searches for existing AlvariSTAR installations. If an existing AlvariSTAR installation (version 3.5 or higher) is detected, the system will automatically switch to upgrade mode (see [Section 2.4](#)). If no existing installation is detected the *Choose Install Set* window is displayed.

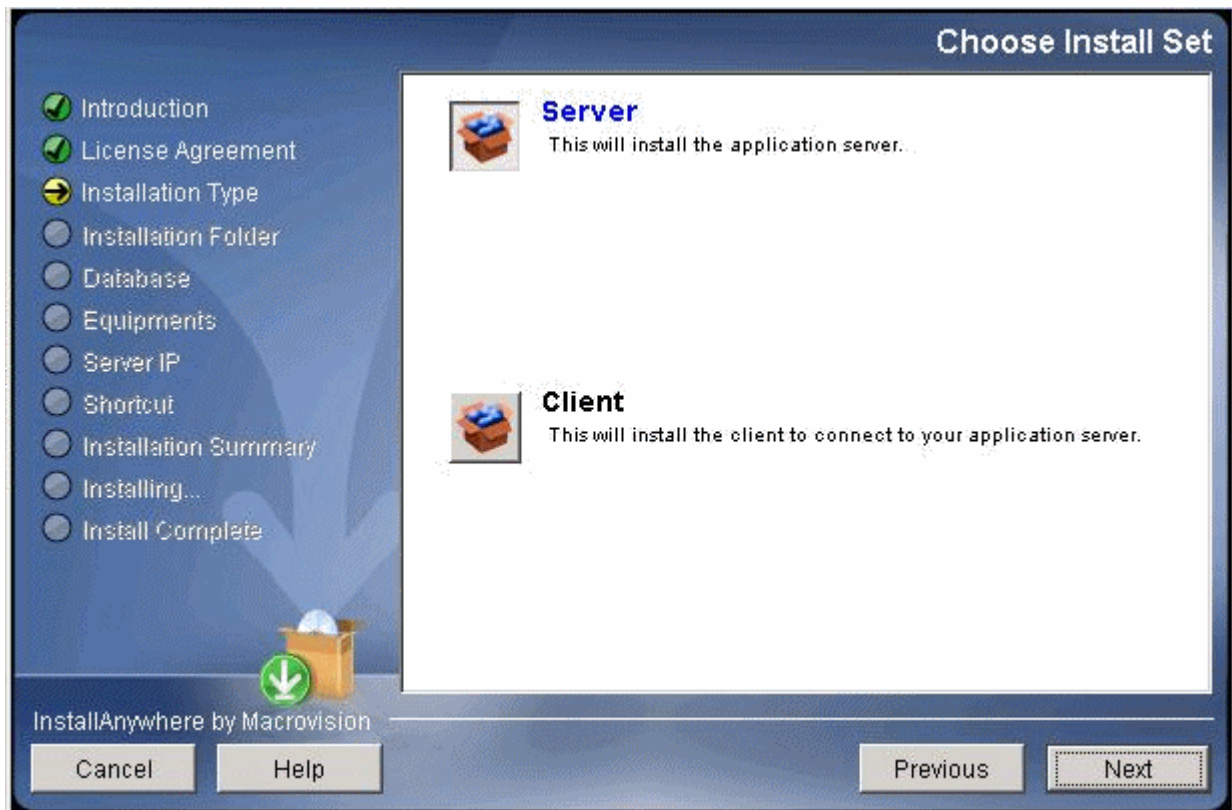


Figure 2-4: Choose Install Set Window

- 6 Choose **Server** and click **Next** to continue with the server installation.

The *Database Installation Type* is displayed.

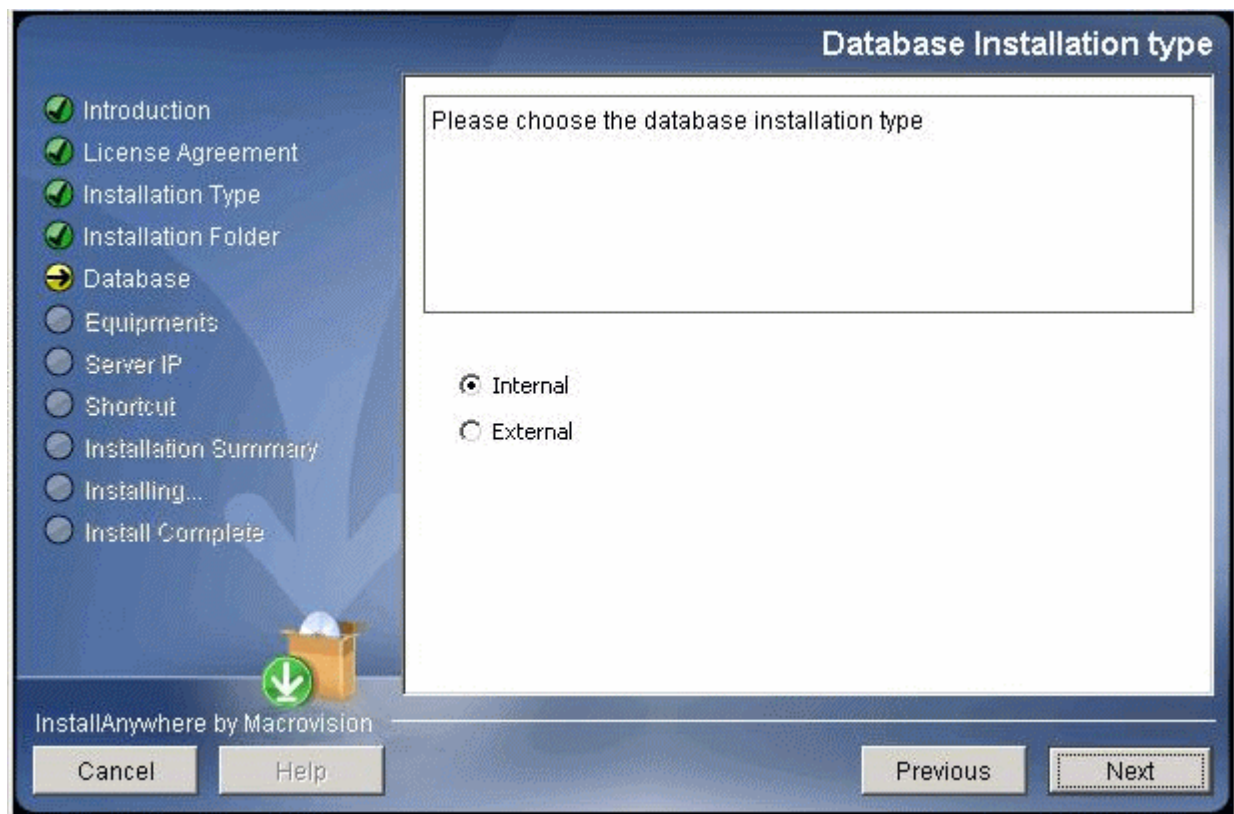


Figure 2-5: Database Installation Type

- 7 Select **Internal** for the Oracle embedded installation (see the release notes about the Windows operating systems that support Oracle embedded installations). Select **External** if you are planning to use an Oracle or MySQL stand alone database. Then click **Next** to continue.
- If you selected **Internal**, you must indicate where to place Oracle DB's datafiles and redo logs. The placement must be in accordance with the recommended partitioning scheme described in [Table 2-1](#).

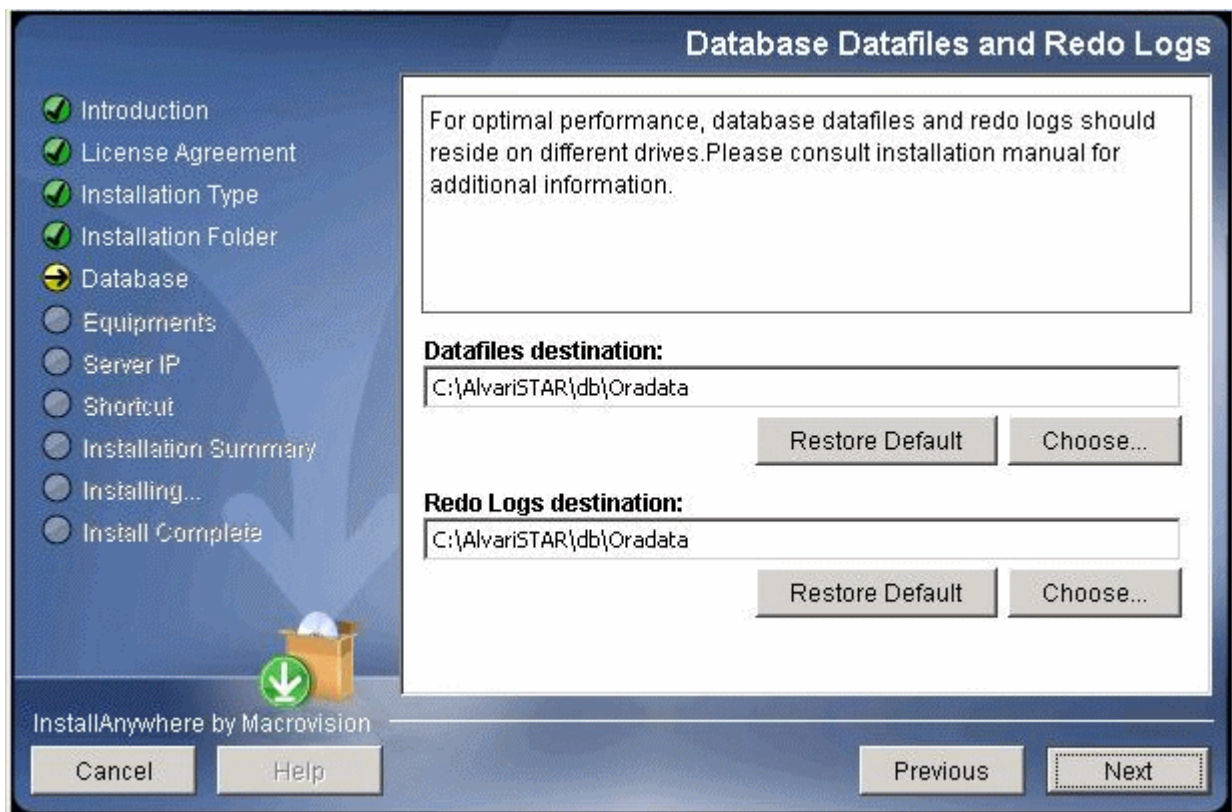


Figure 2-6: Oracle DB Datafiles and Redo Logs

Next, you must select the NIC the Oracle database is bound to. If you use the loopback IP address, no external application will be able to connect to this database.

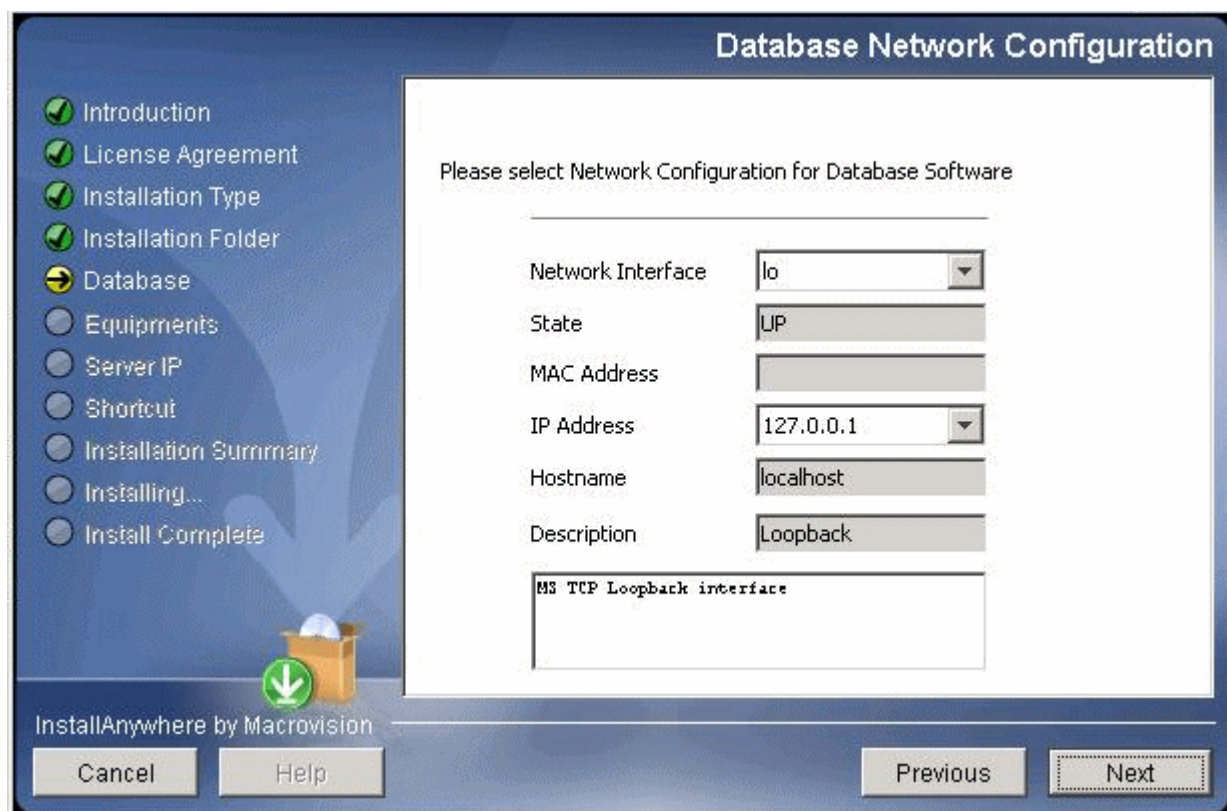


Figure 2-7: Oracle DB Network Configuration

- If you chose an **External** database, you will also have to specify the type of database you will use (see [Figure 2-8](#)).

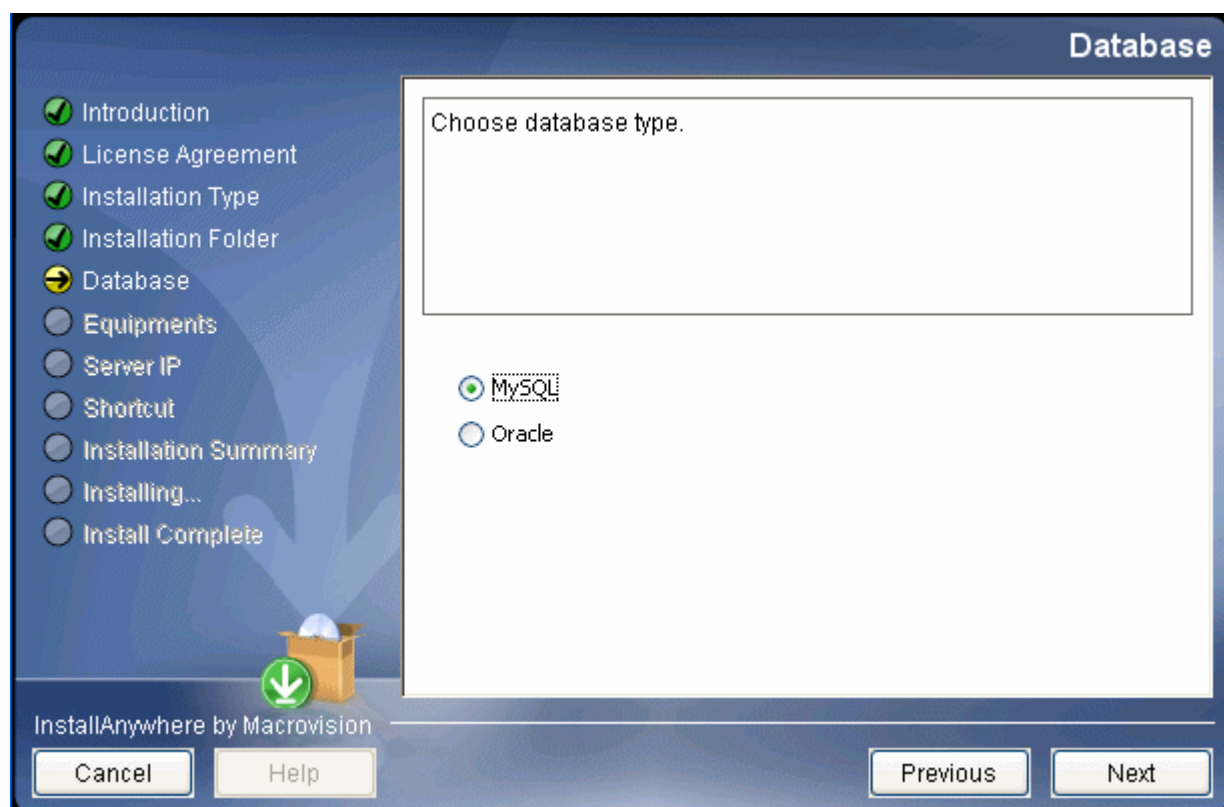


Figure 2-8: Database Type

Select either MySQL or Oracle and click **Next** to continue.

- a** If you are using a MySQL database, the following window is displayed.

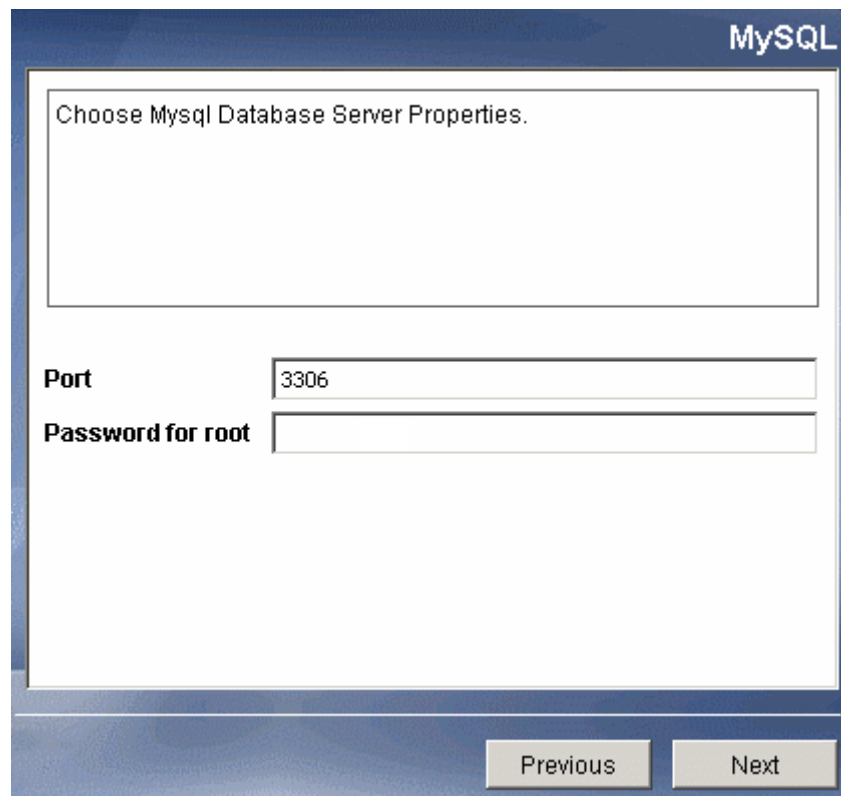
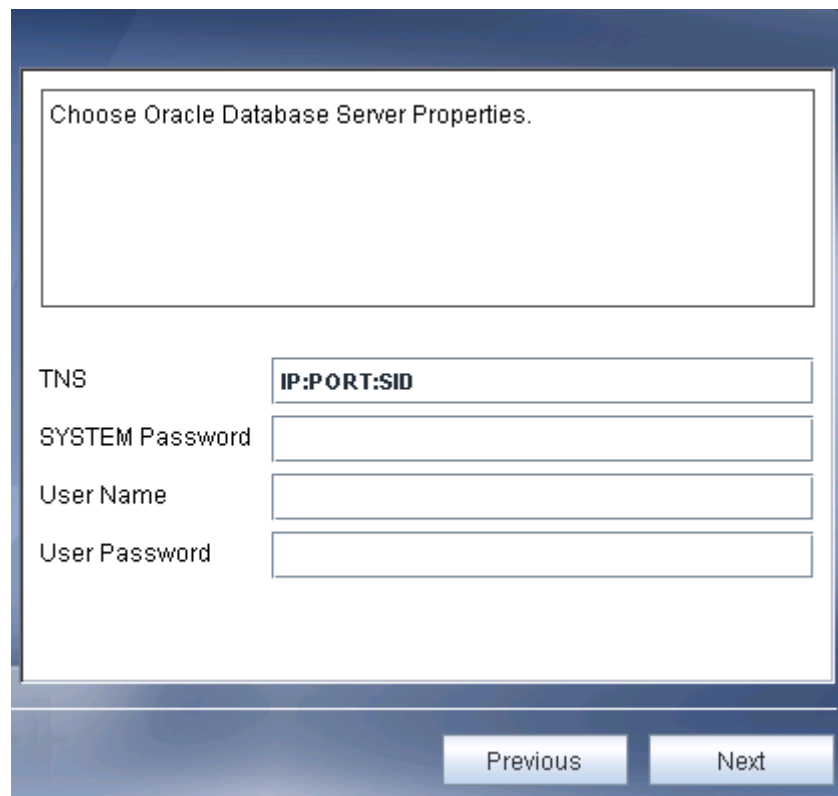


Figure 2-9: MySQL Properties Window

- » Enter the values for the following database properties and click **Next**:
 - ◇ **Port** = port number to access the database (default = 3306)
 - ◇ **Password for root** as set during the MySQL installation
- b If you are using an Oracle database, the following window is displayed.

The image shows a Windows-style dialog box titled "Choose Oracle Database Server Properties." It contains four input fields: "TNS" with a placeholder "IP:PORT:SID", "SYSTEM Password", "User Name", and "User Password". At the bottom right are "Previous" and "Next" buttons.

Choose Oracle Database Server Properties.

TNS

SYSTEM Password

User Name

User Password

Previous Next

Figure 2-10: Oracle Properties Window

Define the parameters as follows and click **Next**:

- » In the **TNS** field, enter the ID of the computer on which the Oracle DB is running, in the format IP:port:SID

where:

- ◇ IP = IP address of the machine where the Oracle DB is installed. PORT = port number to access DB (default = 1521)
- ◇ SID = Oracle System Identifier.

For example, a TNS may look like the following:

10.0.22.200:1521:orcl

- » In the **SYSTEM Password** field, enter the Oracle system password that is necessary in order to create an AlvariSTAR user in Oracle.
- » In the **Username** field, enter a username for the AlvariSTAR schema within the Oracle instance. Do not specify an existing or reserved username (e.g. system, sys, internal, scott). The username and password can only contain characters from the installation database character set and must be no more than 30 characters long.
- » In the **Password** field, enter a password for the user that was defined in the Username field.

For Oracle Embedded installations, the default password is **BWANMS**.



NOTE

If the username already exists within the Oracle instance the user will be dropped and recreated. All the objects owned by the user will be removed.

Connection to the database is tested.



Figure 2-11: Testing connection to the database



NOTE

If the database is not installed and running or values are incorrect, connection to the database fails and an error message is displayed.

Next, the *Device Driver Selector* window is displayed.

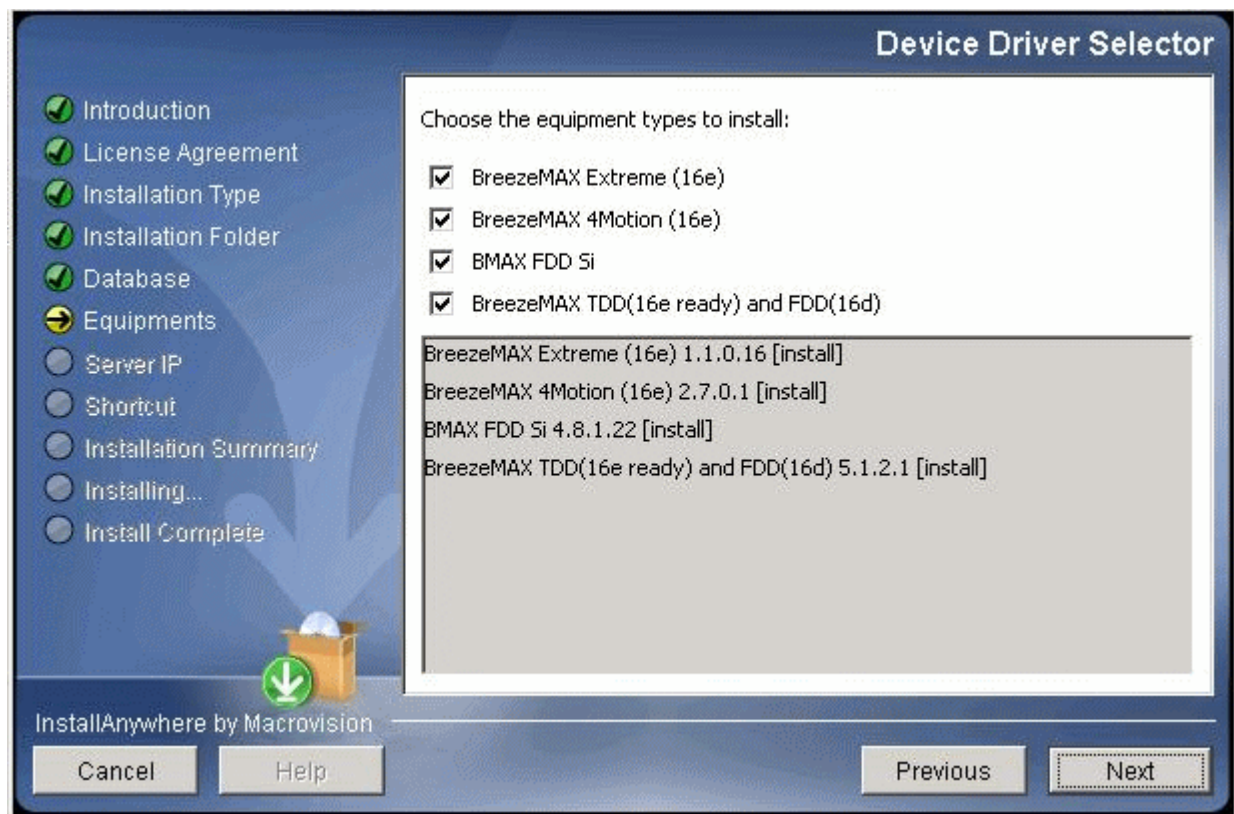


Figure 2-12: Device Driver Selector Window

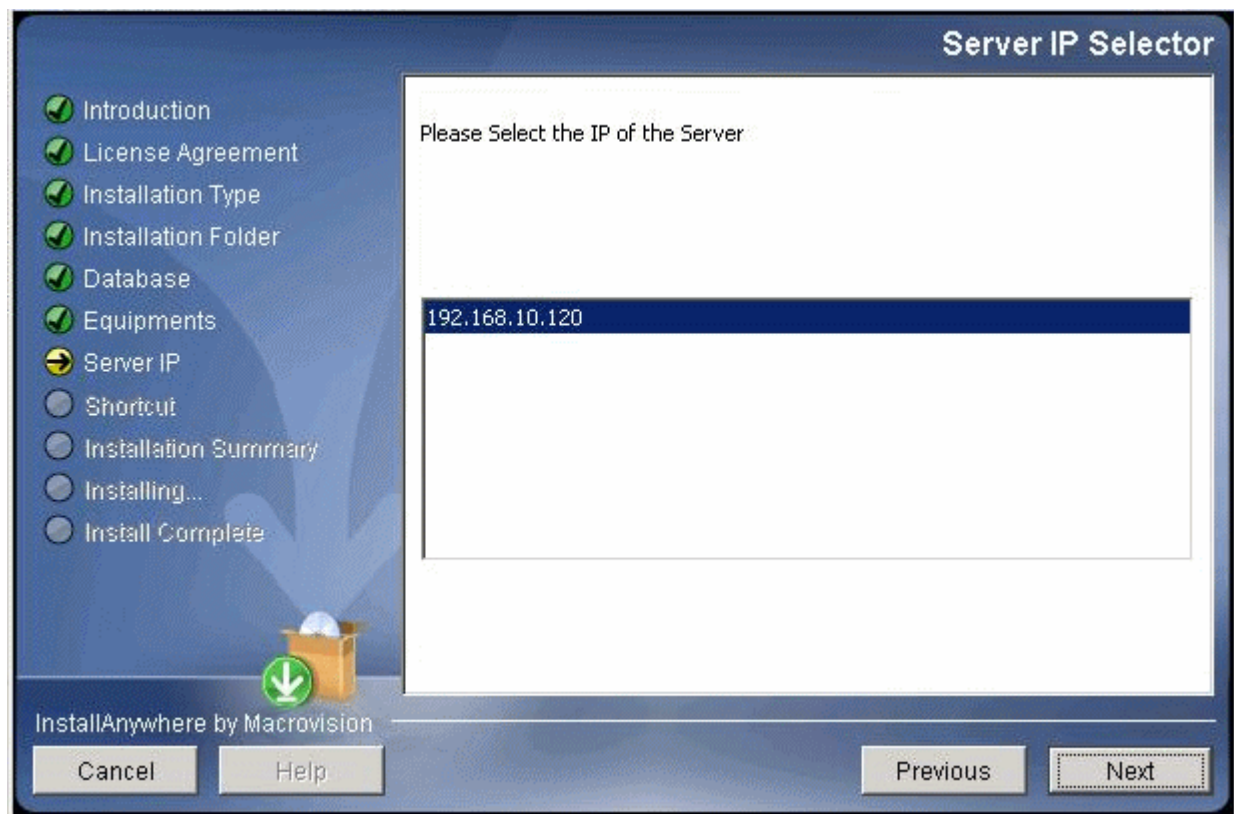
- 8 Select the device driver(s) to install and click **Next**.



NOTE

At least one device driver must be selected.

- 9 The *Server IP Selector* window is displayed.

**Figure 2-13: Server IP Selector Window****NOTE**

If there is more than one NIC (network interface card) installed in the system, a list of the IP addresses for each NIC is displayed in the *Server IP Selector* window. Make sure that the selected IP is setup as described in [Section 2.2.1.5](#).

- 10** Select the IP address on which the server will listen to client requests and click **Next**.

The *Choose Shortcut Folder* window is displayed.

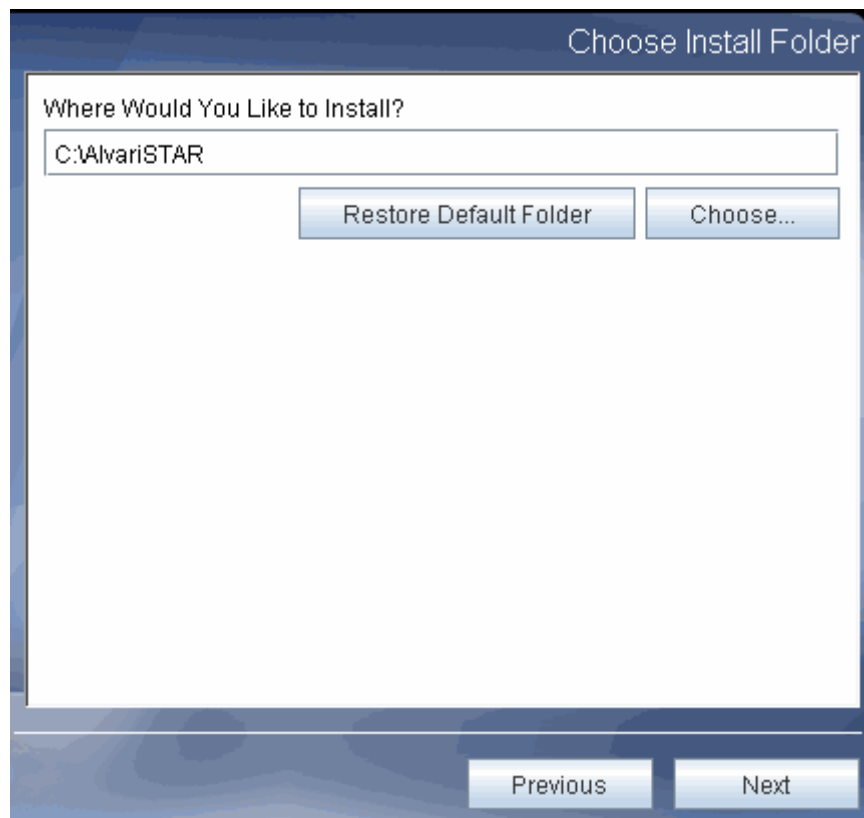


Figure 2-14: Choose Install Folder Window

- 11 To accept the default destination folder, click **Next**. To change the directory, either enter the complete path (if the directory does not exist, it will be created automatically by the system) or, click **Choose** to locate an existing directory and click **Next**. To return to the default destination folder, click **Restore Default Folder**.

The *Choose Shortcut Folder* window is displayed.



NOTE

If a folder with the same name already exists on the computer, a warning to save all information in the folder is displayed. Upon confirmation, the content of the folder will be deleted before installing AlvariSTAR.

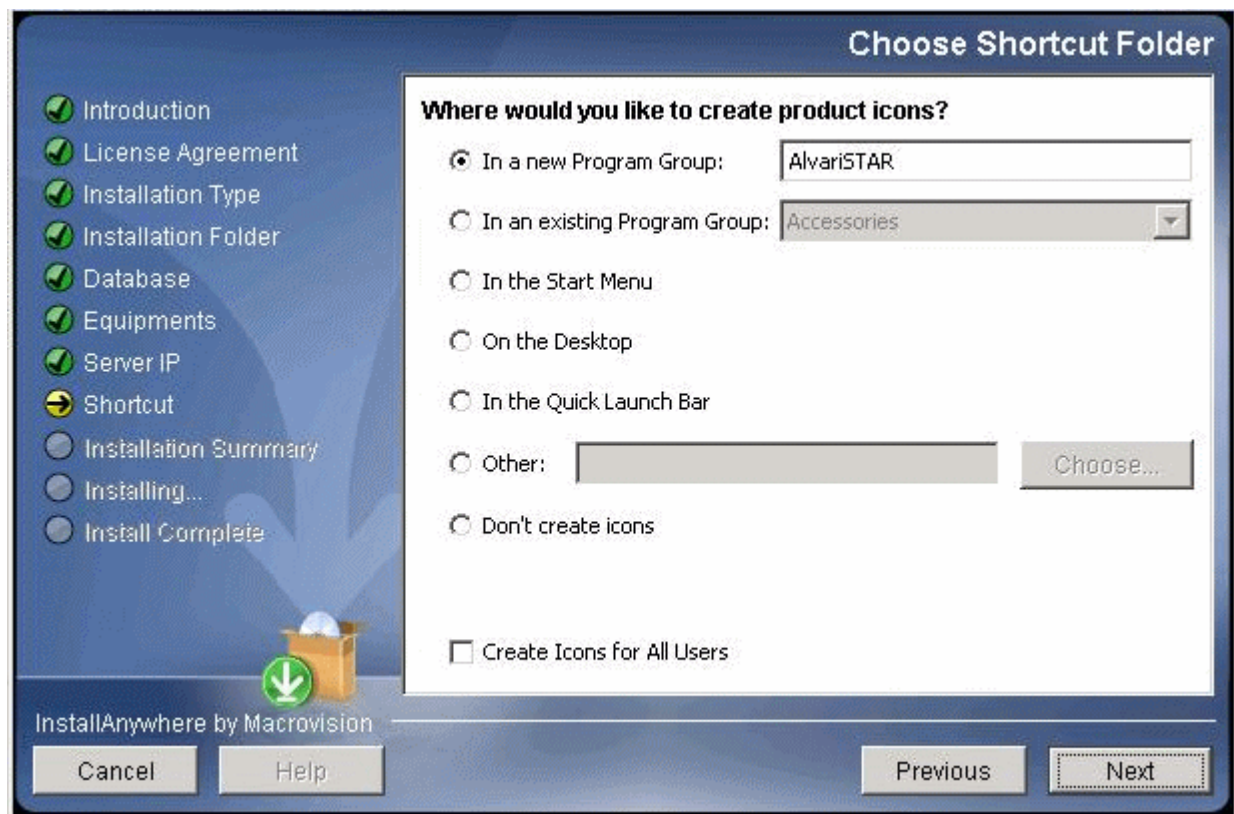


Figure 2-15: Choose Shortcut Folder Window

- 12** Select a location for the product icons and click **Next**.



NOTE

By default, the *In an existing Program Group* is selected and the *Create Icons for All Users* box is checked. To create icons for the current user only, select the *In a new Program Group* option and then uncheck the *Create Icons for All Users* box.

The *Installation Summary* window is displayed.

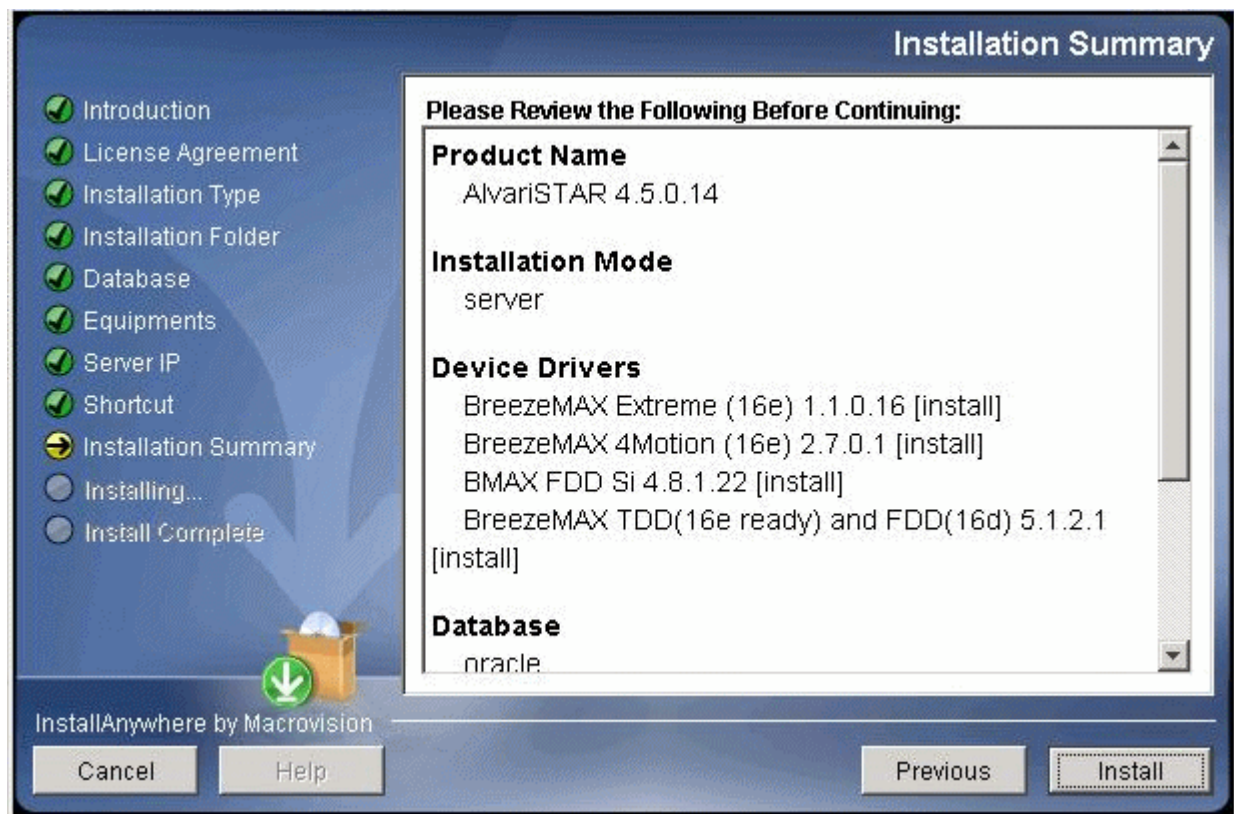


Figure 2-16: Installation Summary Window

- 13 Review the information and if the definitions are all correct, click **Install**. Click **Previous** to go back to change a definition.

The *Installing AlvariSTAR* window is displayed.



Figure 2-17: Installing AlvariSTAR Window

- 14 The installation process takes several minutes.

Once AlvariSTAR has been successfully installed the *Install Complete* window is displayed.

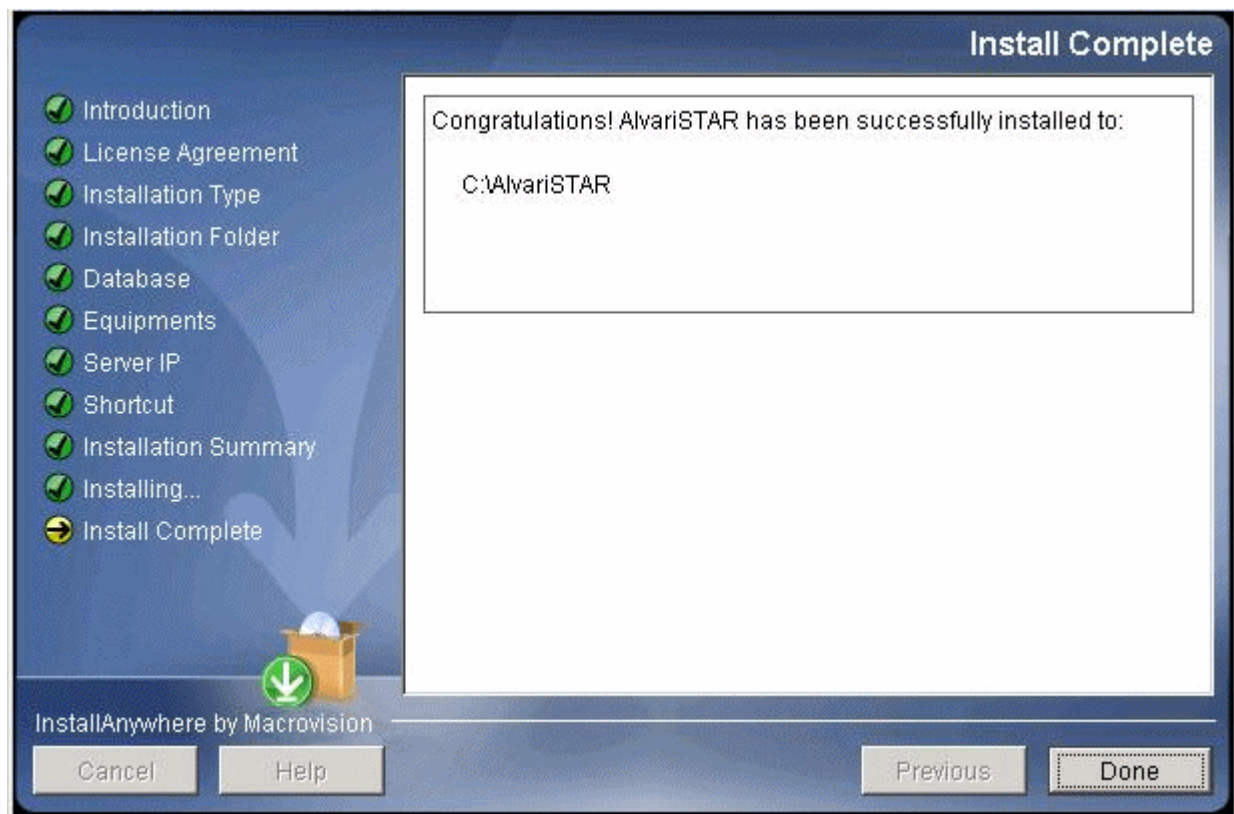



Figure 2-18: Install Complete Window

The  **NMS Server Monitor** icon appears in the System Tray and the application starts running. The color of the icon indicates the status of the service: red when not running, yellow while starting up, green when running properly.

- 15 Click **Done** in order to quit the installer and complete the installation.

2.2.3 Post-installation tasks

2.2.3.1 Configuring Global Properties

The Application Server host must be configured.



To configure the global properties:

- 1 Shut down the AlvariSTAR Application Server.
- 2 Edit the the appserver.properties file <AlvariSTAR Root>\jboss\server\nms\deploy\bwans.ms.sar\conf\appserver.properties and modify the following parameters:

Table 2-3: Application Server Properties Parameters

Parameter	Default Value	Functionality
com.bwanms.serviceAffectingWarning	false	If true, a message confirming the device driver, is displayed whenever you click Apply .
com.bwanms.fault.event.lifeTime	30 (secs)	The minimum time an event is displayed once it has been cleared or acknowledged. Note: The display time varies depending on at which point of the 1 minute refresh cycle the event was cleared/acknowledged.
Application Log Aging		
com.bwanms.logging.retainsDays	10	The number of days that log files are saved for display Note: This condition is applied cummulatively with com.bwanms.logging.maxFileSize
com.bwanms.logging.maxFilesSize	2 GB	The maximum size of all the log files combined. Note: The smaller of the 2 values, takes effect Note: This condition is applied cummulatively with com.bwanms.logging.retainsDays
Performance Collection		

Table 2-3: Application Server Properties Parameters

Parameter	Default Value	Functionality
com.bwanms.pmcollection.exportFolder	<AlvariSTAR Root>\filesystem\export	The name of the folder to which the performance files are saved.

- 3 Edit the the email.properties file <AlvariSTAR
Root>\jboss\server\nms\deploy\bwanms.sar\conf\email.properties and
modify the following parameters:

Table 2-4: Mail Settings Parameters

Parameter	Default Value	Functionality
mail.transport.protocol	smtp	The mail transport protocol. AlvariSTAR currently only supports smtp
mail.smtp.host		The smtp mail host
mail.smtp.port		The smtp mail port
mail.smtp.starttls.enable	false	If true, activates a data encryption protocol
mail.smtp.auth	false	If true, requires using an authenticated email account
mail.smtp.user		User name if authentication is required
mail.smtp.password		Password if authentication is required
mail.debug	false	If true, an entry is added to the log file, everytime an email is sent

- 4 Edit the rb.properties file <AlvariSTAR
Root>\jboss\server\nms\deploy\bwanms.sar\conf\rb.properties and modify
the following parameters related to the device driver:

Table 2-5: RB Parameters

Parameter	Default Value	Functionality
FAULT		

Table 2-5: RB Parameters

Parameter	Default Value	Functionality
com.bwanms.rb.ddi.disableSUSysTrap	true	If true, AlvariSTAR does not generate network management system traps for the SU. Traps that come from the device itself, are processed. If false, AlvariSTAR will generate events for the SU as well.
com.bwanms.rb.ddi.disabledTrap		A list of SUs for which AlvariSTAR does not treat traps generated by the device. The format is trap source . trap specific. eg. SU.101, SU.102.
TFTP		
com.bwanms.rb.ddi.downloadConfigurationFile.tftpDefaultTimeout	5000 (ms)	The default timeout for configuration file download.
com.bwanms.rb.ddi.downloadConfigurationFile.tftpDefaultRetries	3	The number of TFTP retries permitted for configuration file download.
com.bwanms.rb.tasks.softwareupgrade.tftpDefaultTimeout	5000 (ms)	The default timeout for software upgrade file download
com.bwanms.rb.tasks.softwareupgrade.tftpDefaultRetries	3	The number of TFTP retries permitted for software upgrade file download.

- 5 If the TFTP Server IP address needs to be changed (for example: if there are separate networks for Wimax and Client/Server),

» Open the <AlvariSTAR

Root>\jboss\server\nms\deploy\bwanms.sar\META-INF\jboss-service.xml file and locate the following text:

```
<mbean code="com.bwanms.services.ejb.TFTPManagerService"
  name="bwanms:service=TFTPManagerService">
    <attribute name="WorkingDir">tftp</attribute>
    <attribute
      name="IPAddress">${jboss.bind.address}</attribute>
    <attribute name="Port">69</attribute>

    <depends>bwanms:service=PropertiesManagerService</depends>
  </mbean>
```

and replace the "\${jboss.bind.address}" token with the required IP.

OR

- » Edit the <AlvariSTAR Root>/watchdog/watchdog.properties file.

- 6 Restart the AlvariSTAR Application Server.

2.2.3.2 Synchronizing the Time Zone Settings

In order for the system to run smoothly, the internal clocks of the client machine and the server machine must be synchronized. After AlvariSTAR is installed you must make sure that both client and server are set to the same GMT time and have the same time zone settings.

2.2.3.2.1 Verifying and Setting the Internal Clock



To set the internal clock in Windows systems:

- 1 From the **Start Menu**, select *Control Panel—Date and Time*.
- 2 Select the *Time Zone* tab and select **GMT** from the drop-down list.
- 3 Select the *Date & Time* tab and set the time so that is the same time as GMT.
- 4 Verify that the date is correct.
- 5 Select the *Time Zone* tab, select the regional time from the drop-down list and click **Apply**.

2.2.3.2.2 Verifying Server and Client Time

Because of potential inconsistencies with daylight saving definitions, after setting the times in the operating system, you must verify that the server application and client application are running on the same time and tune it if necessary.



To verify server and client time:

- 1 To verify server time, open the log file
<AlvariSTAR Root>\jboss\server\nms\log\server.log and check the last date stamp.
- 2 To view the client time, select **Network Scan** from the *Task Manager* window and click **Schedule**. The *Schedule Editor* window is displayed. The client time is the time displayed in the *Schedule Editor* ([Figure 2-19](#)).

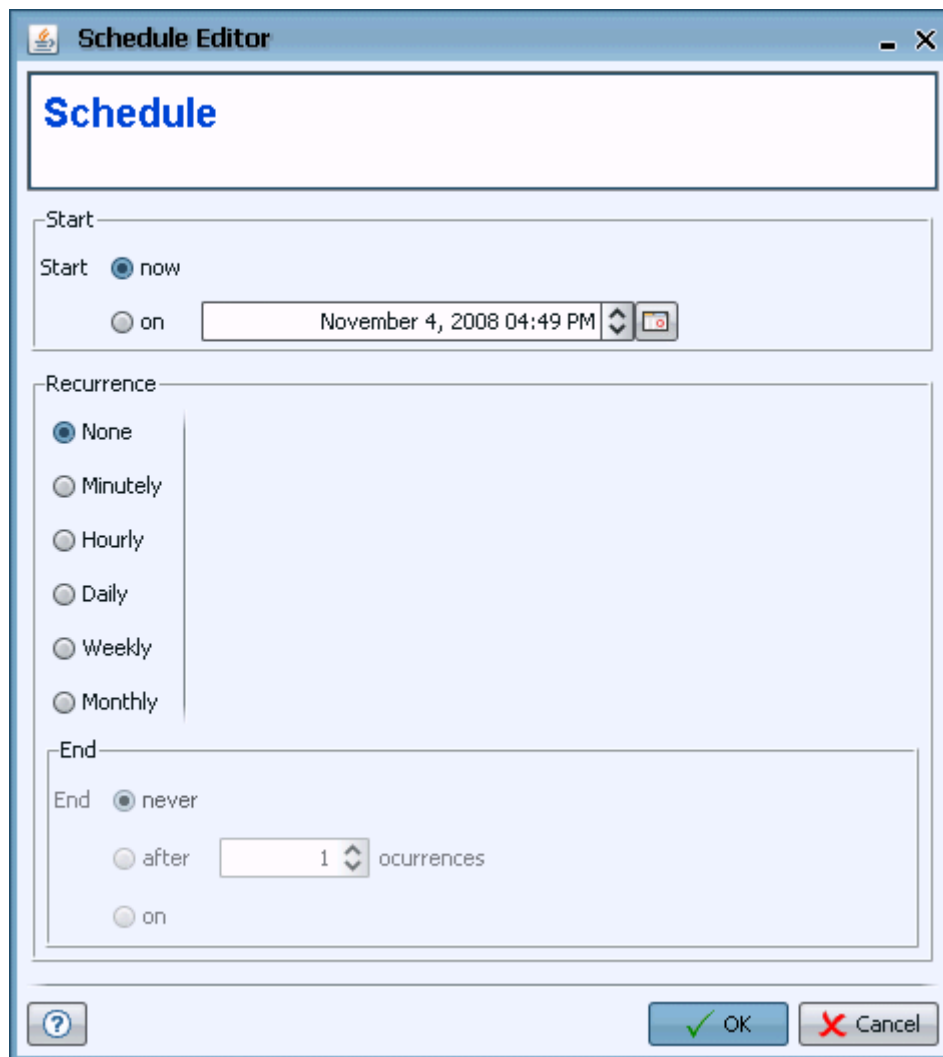


Figure 2-19: Schedule Editor

- 3 If necessary, change the client time so that is the same as the server time and click **OK**.
- 4 Restart the client and verify that the times on the server application and the client application are now the same on both.

2.2.3.3 Installing the License

AlvariSTAR is supplied with a default license that is limited in time and in the number of devices. If you obtained a permanent license from the supplier, refer to Section 5.3 of the *AlvariSTAR User Manual* for instructions on how to install it.

2.3 Running AlvariSTAR

- The **LDAP Server** runs as a Windows Service. By default the service is configured to run on system initialization. To start or stop the service, select *Control Panel—Administrative Tools—Services—Apache Directory Server - default* from the **Start Menu**
- The **Application Server** runs as a Windows Service. By default the service is configured to run on system initialization. To start or stop the service, select *Control Panel—Administrative Tools—Services—NMS Server Service* from the **Start Menu**.
- The **Watchdog Application** runs as a Windows Service and starts together with the AlvariSTAR Application Server service. For further information see the Administration section in the *AlvariSTAR User Manual*.
- Run **AlvariSTAR Client** from the **Start Menu**.

2.3.1 Manually Starting and Stopping AlvariSTAR

Right-click on the NMS Server Monitor icon in the Notification area (on the Task Bar) and select Start/Stop.

2.3.2 Verifying the Application Server State

After installing the AlvariSTAR Server on Windows OS, an icon appears in the Notification area (on the Task Bar). The icon's color indicates the state of the Application Server, as follows:



Application Server is up



Application Server is down



Application Server is shutting down/starting up



Service is not working

2.3.3 Configuring the Web Portal

The AlvariSTAR server runs a web portal which enables users to access all the applications in the Star Management Suite via Java Web Start software

framework (see the Remote Access section in the user manual for more information). The web portal can be accessed by entering the following URL in a web browser:

```
http://<AlvariSTAR IP Address>:8080/starsuite
```



Figure 2-20: The Web Portal

By default, all the applications are visible in the portal and the AlvariSTAR link is working. However, the web portal's interface must be configured depending on which applications are installed and where they are installed. For this purpose, you must edit the following file:

```
<AlvariSTAR folder>/jboss/server/nms/deploy/starsuite.war/ConfigApps.js
```

A typical configuration is described below:

```
// Define internal links for applications //

//1.Alvarion01 application
apps['Alvarion01']['title'] = "StarACS";
```

```
apps['Alvarion01']['link'] =
    "http://127.0.0.1/StarACS/Login.aspx";
apps['Alvarion01']['visible'] = true;

//2.Alvarion02 application
apps['Alvarion02']['title'] = "StarQuality";
apps['Alvarion02']['link'] = "http://127.0.0.1";
apps['Alvarion02']['visible'] = true;

//3.Alvarion03 application
apps['Alvarion03']['title'] = "StarReport";
apps['Alvarion03']['link'] =
    "http://127.0.0.1:8080/InfoViewApp/logon.jsp";
apps['Alvarion03']['visible'] = true;

//4.Alvarion04 application
apps['Alvarion04']['title'] = "CSR";
apps['Alvarion04']['link'] =
    "http://127.0.0.1/CSR/Login.aspx";
apps['Alvarion04']['visible'] = true;

//5.Alvarion05 application
apps['Alvarion05']['title'] = "AlvariSTAR";
apps['Alvarion05']['link'] =
    "http://<NMS_SERVER_IP>:8080/webstart/client_<NMS_SERVER_I
    P>.jnlp";
apps['Alvarion05']['visible'] = true;

//Applications Order
apps_order = new Array(4,2,5,1,3);
```

Each application must have 3 parameters configured:

- 1 **link** - The URL used to access the application via Java Web Start. An empty link will determine the icon to be grayed out.
- 2 **visible** - Indicates whether the application's icon is visible by setting the value to 'true' for visible and 'false' for hidden.
- 3 **title** - Indicates the title that is displayed under the icon when hovering with the mouse cursor over it.

The order in which the applications are displayed on the web portal's interface can be adjusted using the **apps_order** parameter as shown above.

2.4 Upgrading an AlvariSTAR Server Installation

Upgrading an AlvariSTAR server upgrades the database and replaces the software with the latest version. Versions earlier than version 3.5 cannot be upgraded automatically. The software must first be upgraded to version 3.5.

IMPORTANT



The migration path must be clear before starting the upgrade process (see [Appendix A](#)). Some versions involve manual procedures.



IMPORTANT

Refer to the Release Notes for additional upgrade pre-requisites.

2.4.1 Upgrading AlvariSTAR

If version 3.5 or higher of AlvariSTAR Server installation with Oracle database is detected on your system, the installation wizard will automatically start the upgrade process. The installer automatically saves and upgrades data while keeping the same host and database.

NOTE



MySQL based installations can only be upgraded up to version 4.0/4.1.

A migration procedure from a MySQL based AlvariSTAR 4.0 or 4.1 version to a later release that uses an Oracle database is also available. This procedure is documented in the `MYSQL_to_Oracle.zip` file that comes with AlvariSTAR.



IMPORTANT

Do not uninstall the previous version manually. Install the current version on top of the previous installation.

Some security features in version 4.x differ from those in version 3.5. For further information about upgrading from version 3.5, see [Appendix B](#). For a complete migration path overview, see [Appendix A](#)



To upgrade an AlvariSTAR server installation:

- 1 Log in as the **User** who owns the AlvariSTAR installation.

- 2 To begin the installation, double-click the **setup.exe** file directly from the AlvariSTAR Install CD. (The setup.exe file can be found in the Disk1 folder.)

InstallAnywhere is activated.

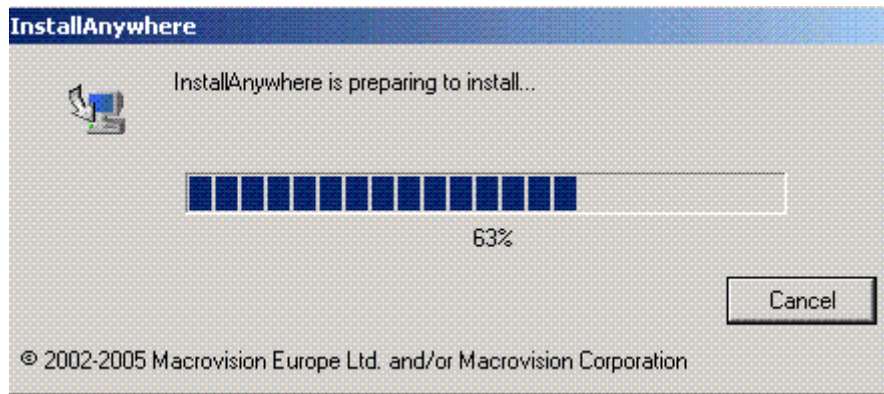


Figure 2-21: InstallAnywhere Initialization

- 3 Wait until InstallAnywhere has completed the initialization.

An *Introduction* window is displayed.



NOTE

During installation, a console screen is displayed in the background behind the installation windows. This screen does not require user intervention and should be ignored.

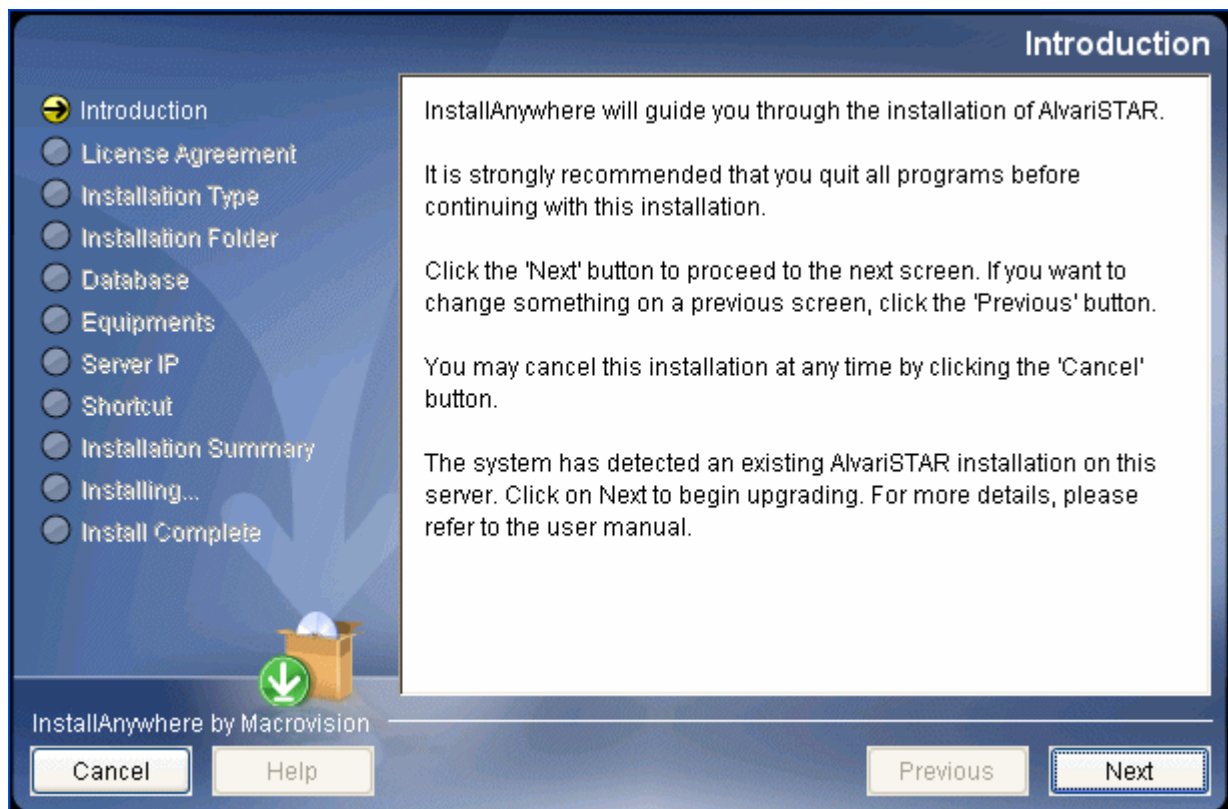


Figure 2-22: Introduction Window

- 4 Review the information and click **Next**.

The MySQL database is exported.

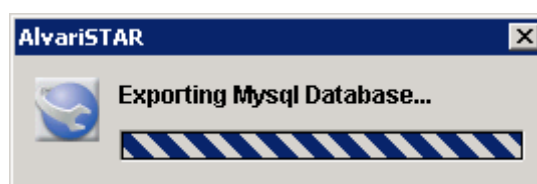


Figure 2-23: Exporting MySQL Database

The security settings are exported.



Figure 2-24: Exporting Security Settings

The installation wizard searches for existing AlvariSTAR installations. The following warning is displayed:

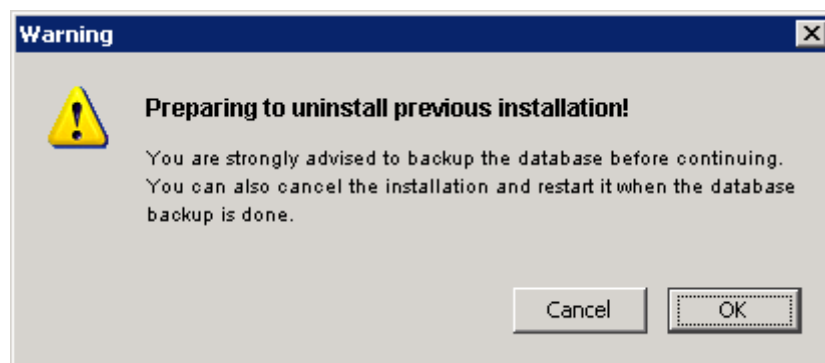


Figure 2-25: Preparing to uninstall warning

- 5 Click **OK** to proceed with the upgrade. The existing version of the product is uninstalled.



Figure 2-26: Uninstalling AlvariSTAR

The *Installer will now exit* message is displayed.

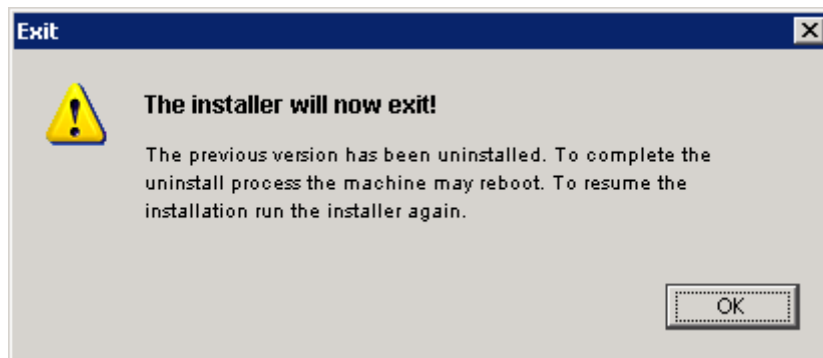


Figure 2-27: The installer will now exit message

- 6 Click **OK** to exit the installer. The computer will restart automatically.

After AlvariSTAR has been uninstalled and the computer has rebooted continue with the installation.

- 7 Log in as the **User** who owns the AlvariSTAR installation and install the MySQL database (see [Section 2.2.1.2](#)).
- 8 Click the **setup.exe** again to continue with the installation and wait until InstallAnywhere has completed the initialization.

The *Introduction* window is displayed.

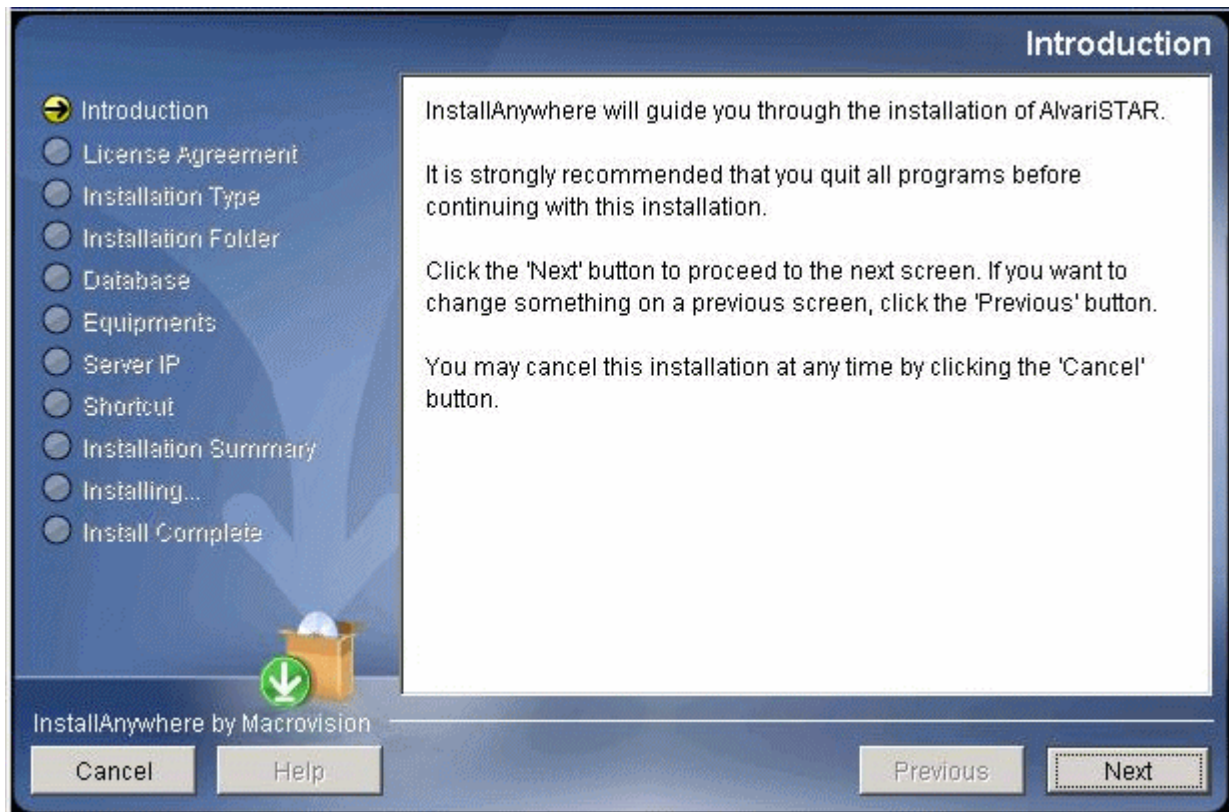


Figure 2-28: Introduction Window

- 9 Review the information and click **Next**.

The *License Agreement* window is displayed.

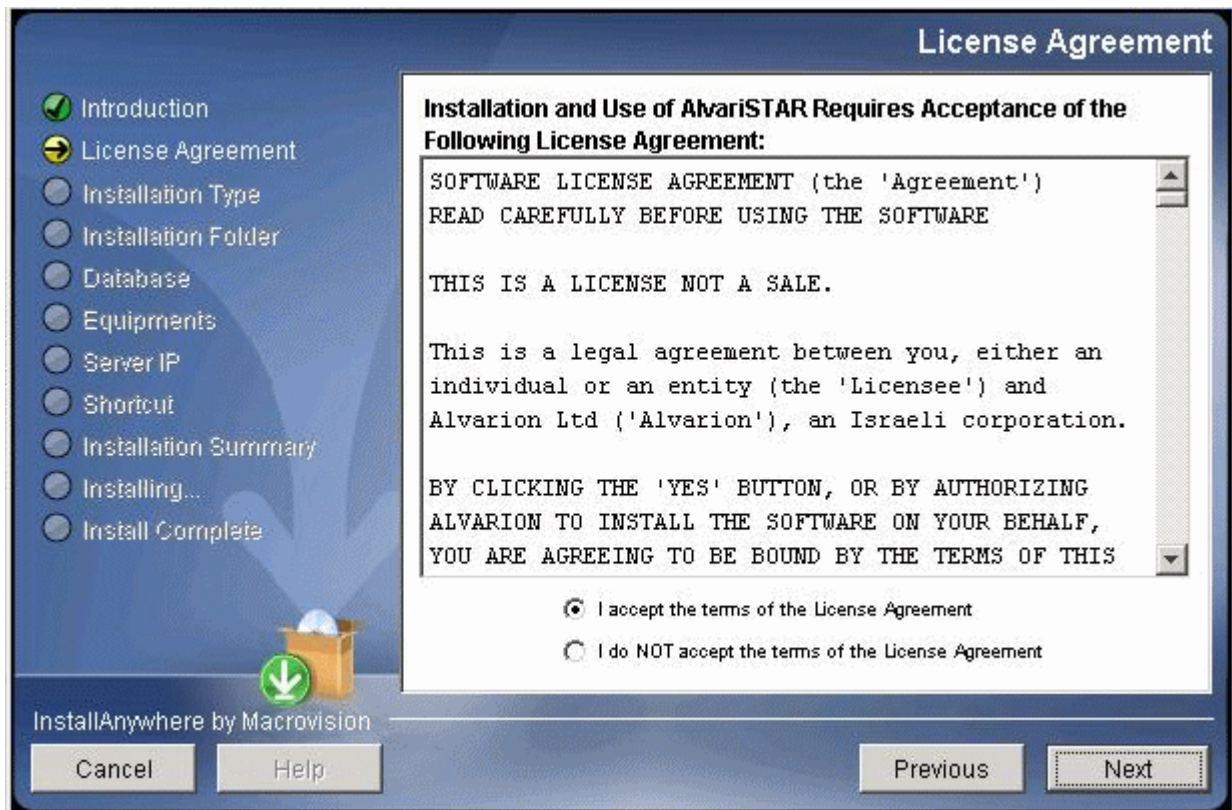


Figure 2-29: License Agreement Window

- 10** Accept the terms of the license agreement and click **Next**.

The *Choose Install Set* window is displayed.

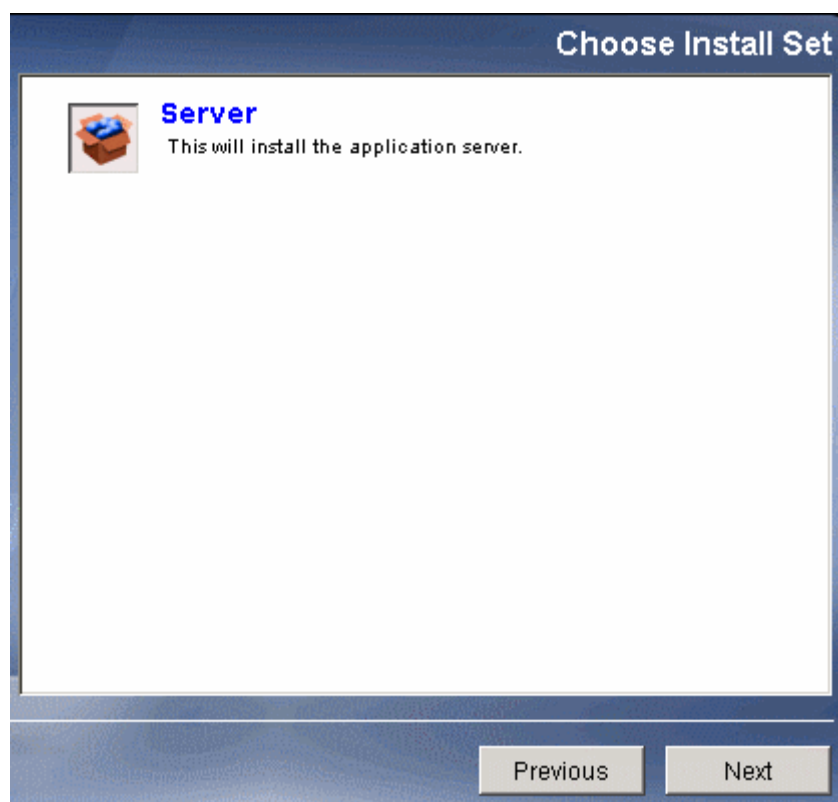


Figure 2-30: Choose Install Set Window

- 11 Choose **Server** and click **Next**. The *Device Driver Selector* window is displayed.

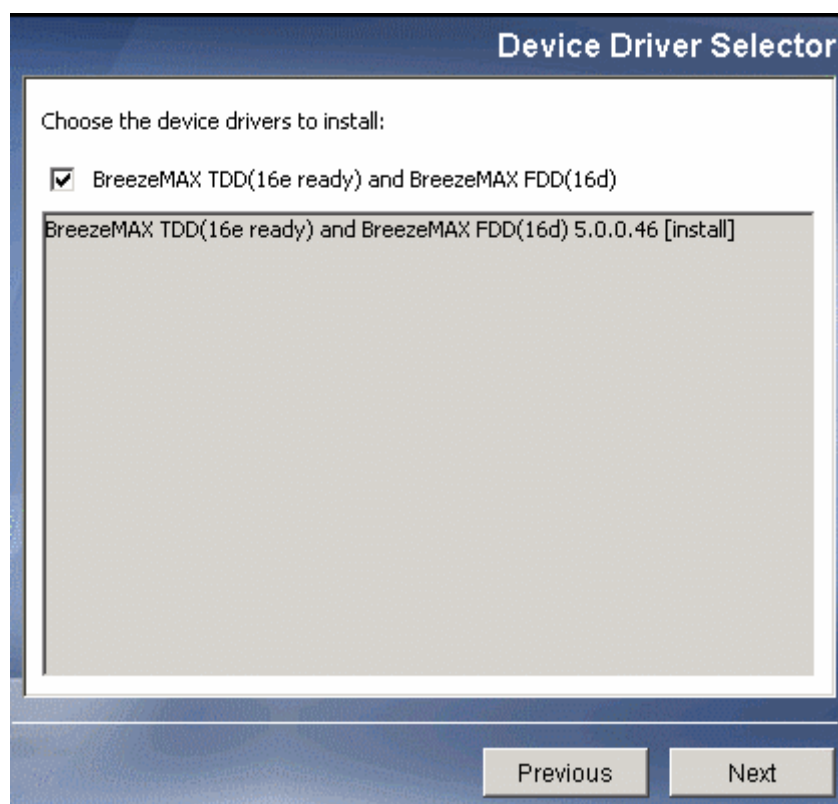


Figure 2-31: Device Driver Selector Window

- 12 Select any additional device driver(s) to install and click **Next**. The migrated device is selected automatically.

The *Choose Shortcut Folder* window is displayed.

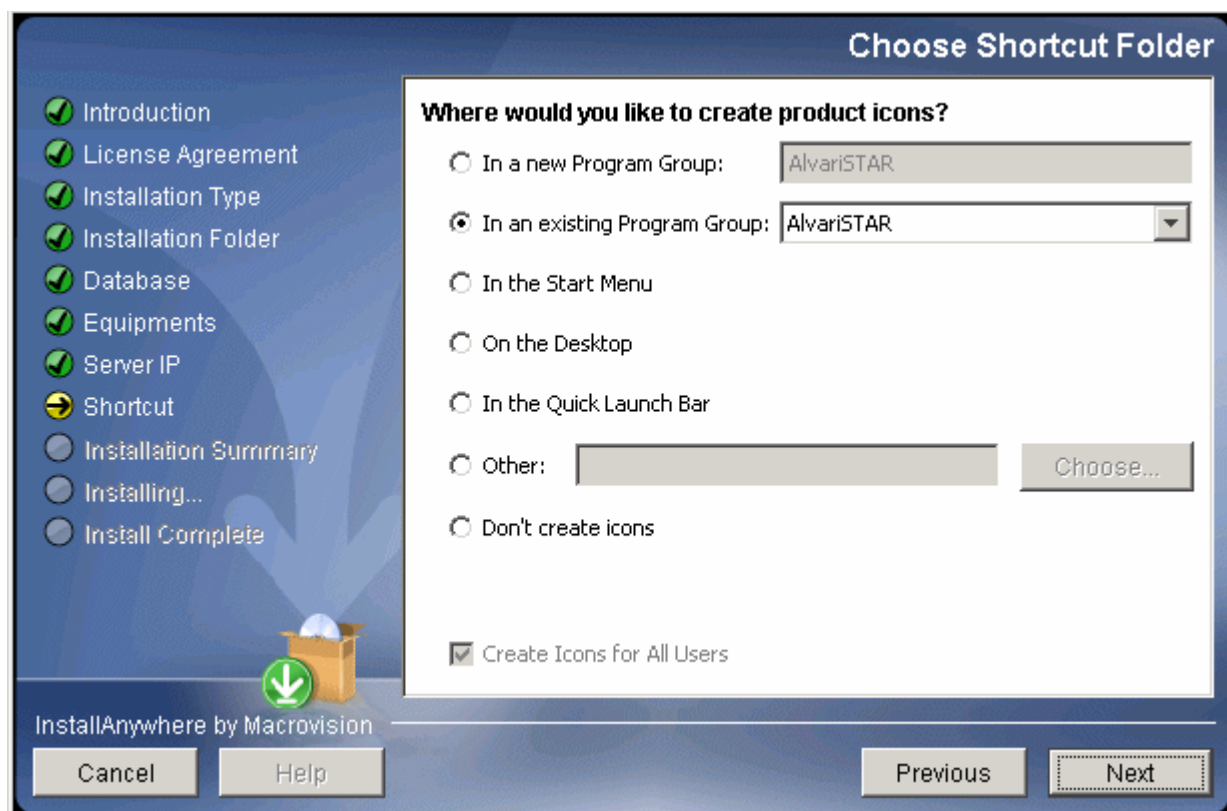


Figure 2-32: Choose Shortcut Folder Window

- 13** Select a location for the product icons and click **Next**.

The *Installation Summary* window is displayed.

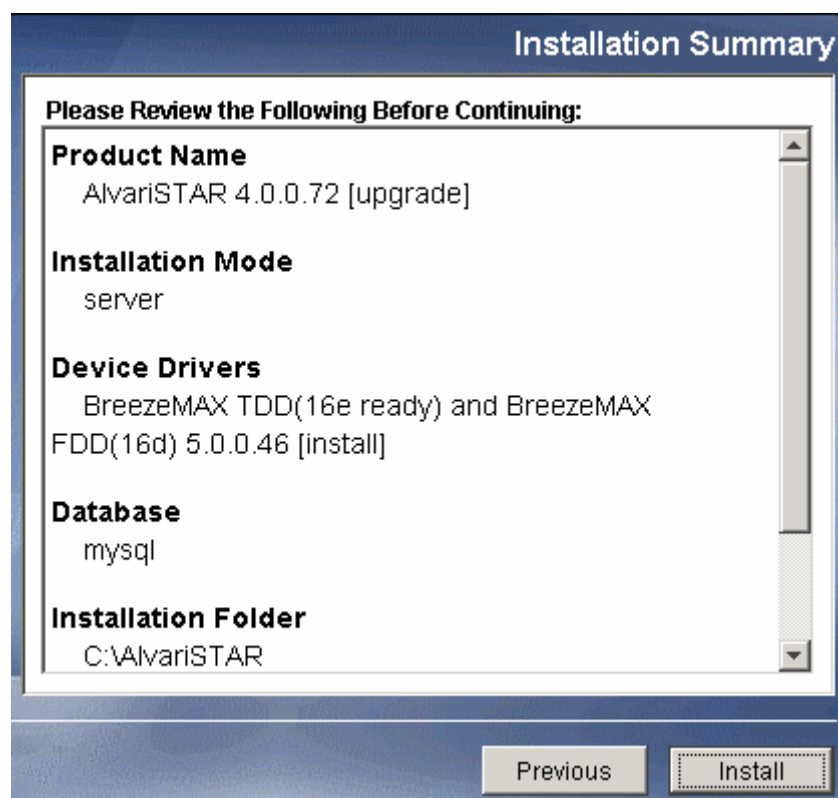


Figure 2-33: Installation Summary Window

- 14 Review the information and if the definitions are all correct, click **Install**. Click **Previous** to go back to change a definition.

The *Installing AlvariSTAR* window is displayed.



Figure 2-34: Installing AlvariSTAR Window

15 The installation process takes several minutes.

Once AlvariSTAR has been successfully installed the *Install Complete* window is displayed

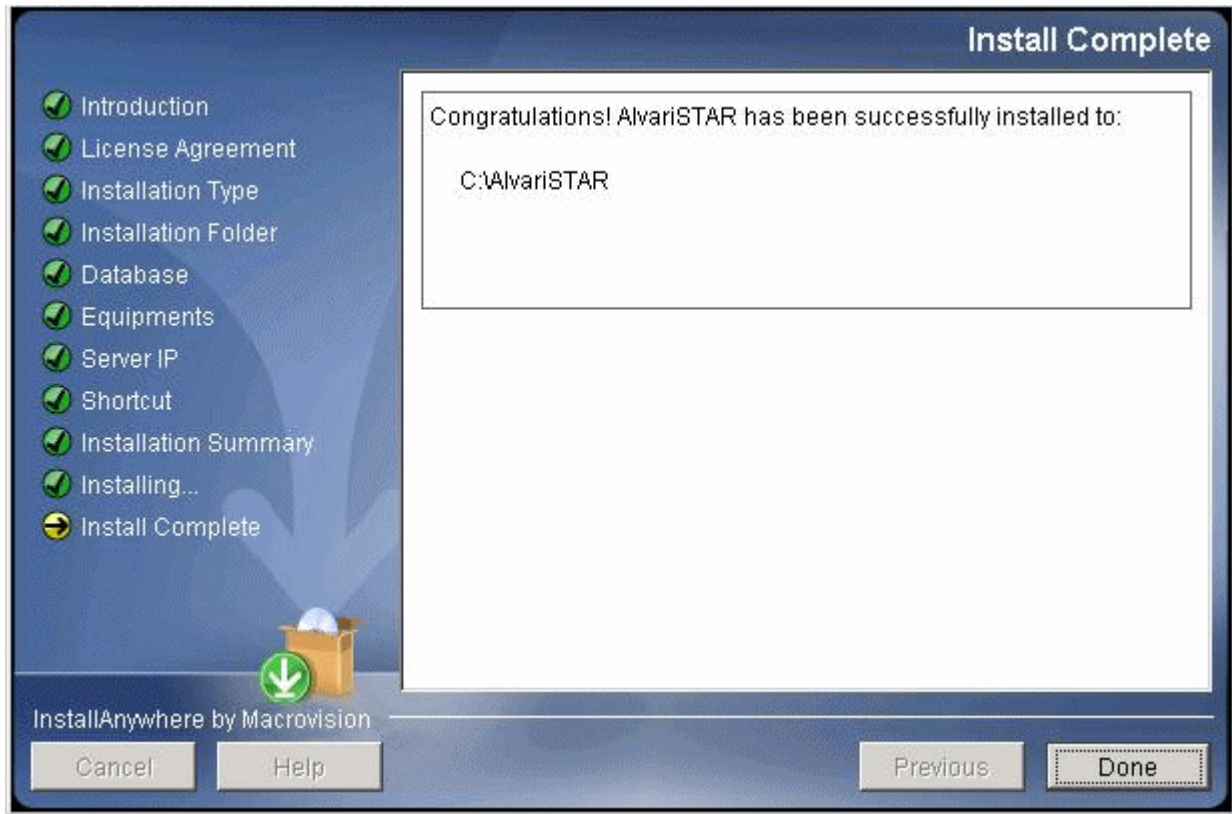


Figure 2-35: Install Complete Window

- 16** Click **Done** to quit the installer and complete the upgrade.



IMPORTANT

After upgrading, the new license must be installed and activated . Refer to the *AlvariSTAR User Manual*.

2.4.2 Upgrading the Device Driver

It is possible to upgrade the device driver or install a driver for a new device at any time.

- 1 Log in to the computer on which the installation is to be performed as a user with administrator privileges.
- 2 To begin the installation, double-click the **setup.exe** file directly from the AlvariSTAR Install CD. (The setup.exe file can be found in the Disk1 folder.)



CAUTION

When copying or downloading the installation kit to a local disk, make sure you copy the entire content of the kit - not only the setup.exe file.

InstallAnywhere is activated.

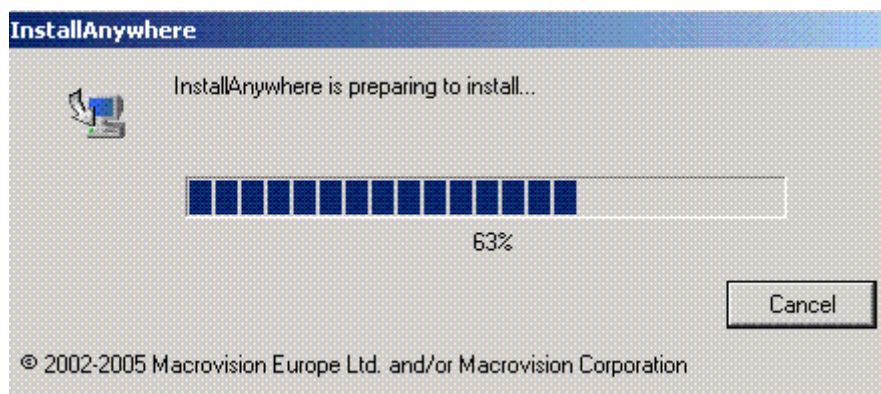


Figure 2-36: InstallAnywhere Initialization

- 3 Wait until InstallAnywhere has completed the initialization. An *Introduction* window is displayed.

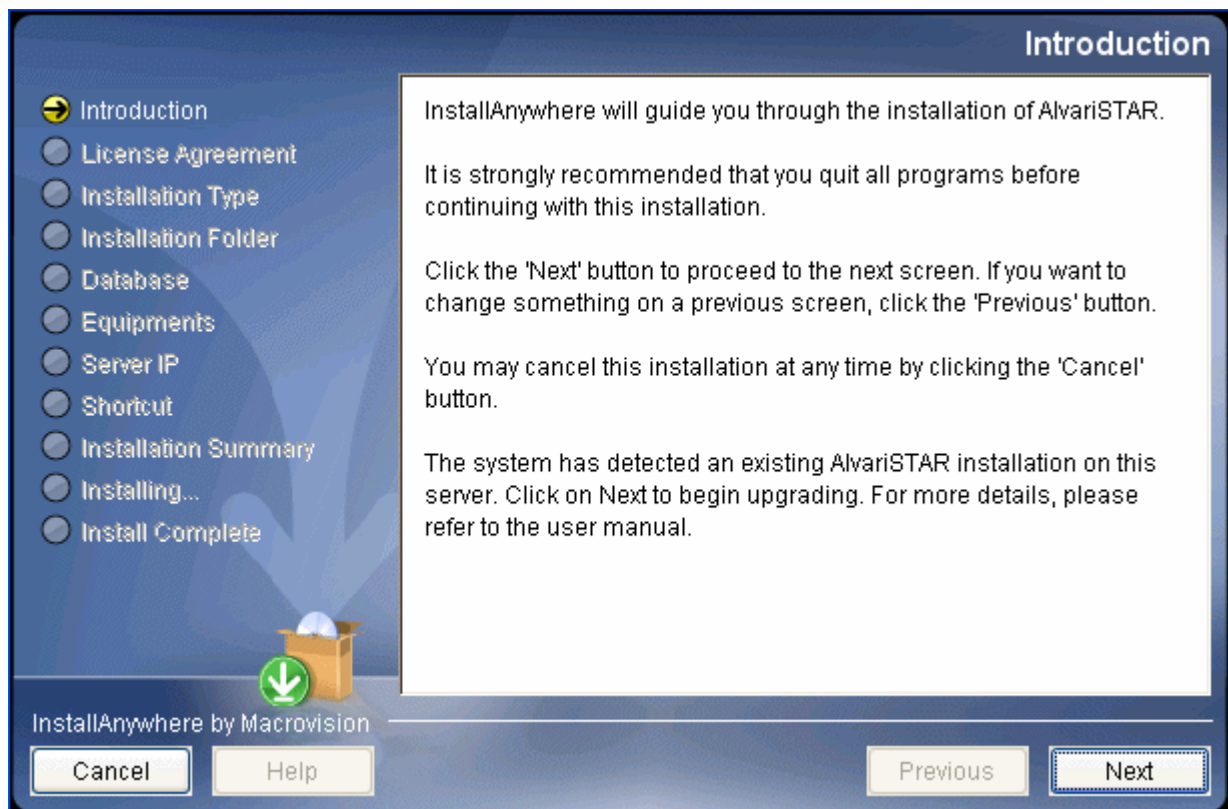


Figure 2-37: Introduction Window

- 4 Review the information and click **Next**. The *License Agreement* window is displayed.

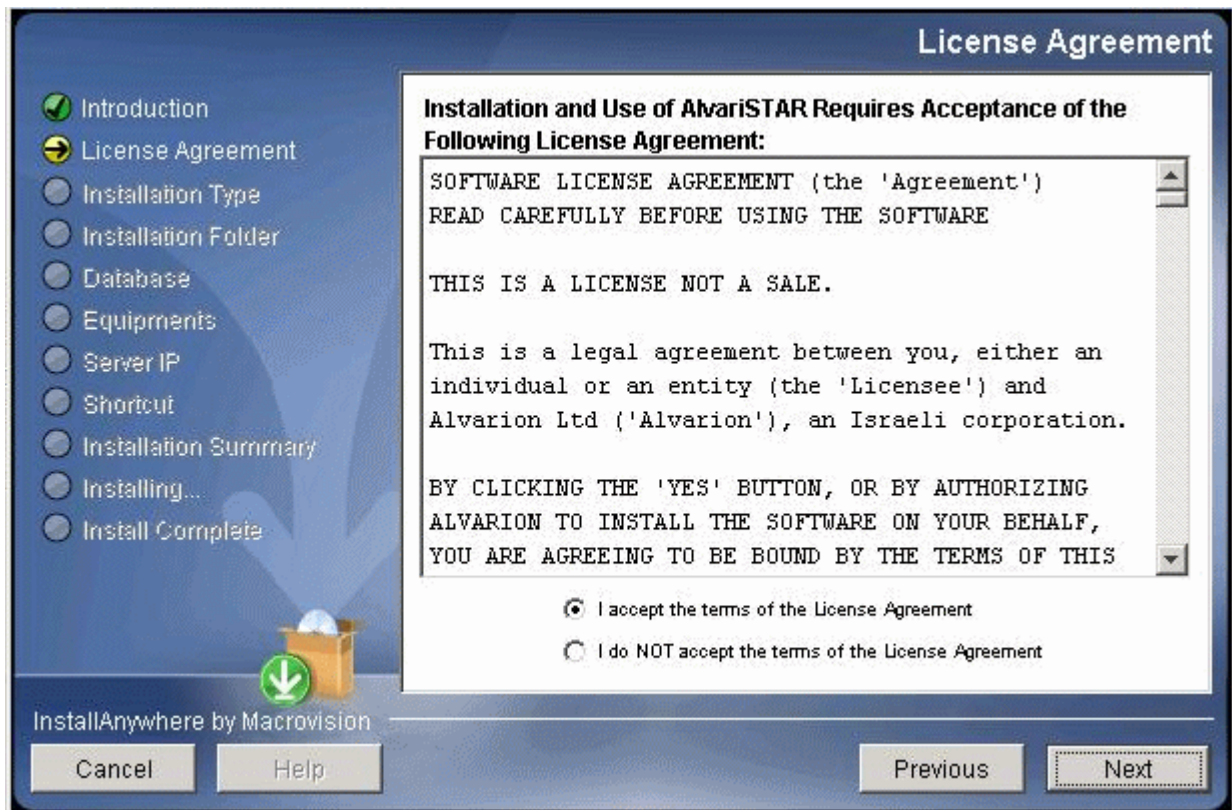


Figure 2-38: License Agreement Window

- 5 Accept the terms of the license agreement and click **Next**.

The *Choose Install Set* window is displayed.

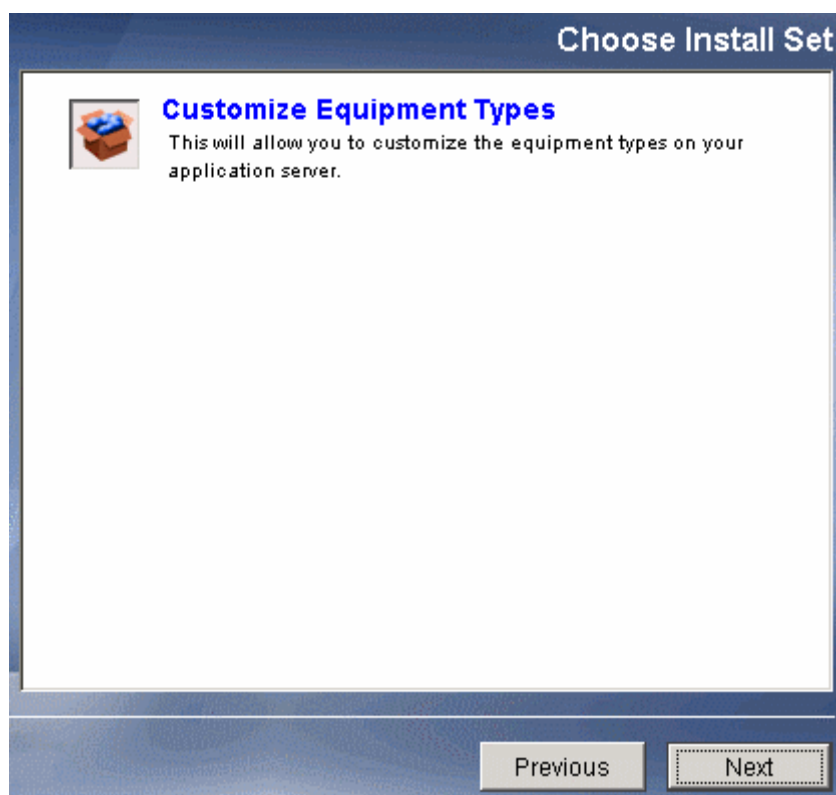


Figure 2-39: Choose Install Set

- 6** Choose **Customize Device Drivers** and click **Next**. The *Device Driver Selector* window is displayed.

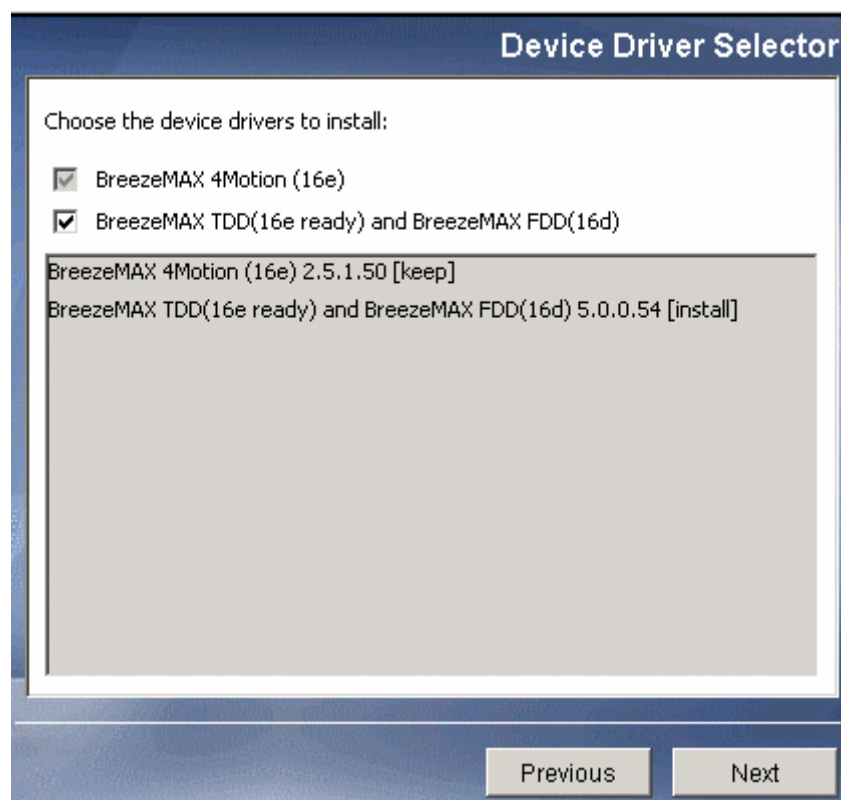


Figure 2-40: Device Driver Selector Window

- 7** Select the device driver(s) to install and click **Next**.



NOTE

If no modifications are made to the current installation, a message is displayed.

The *Customization Summary* window is displayed.

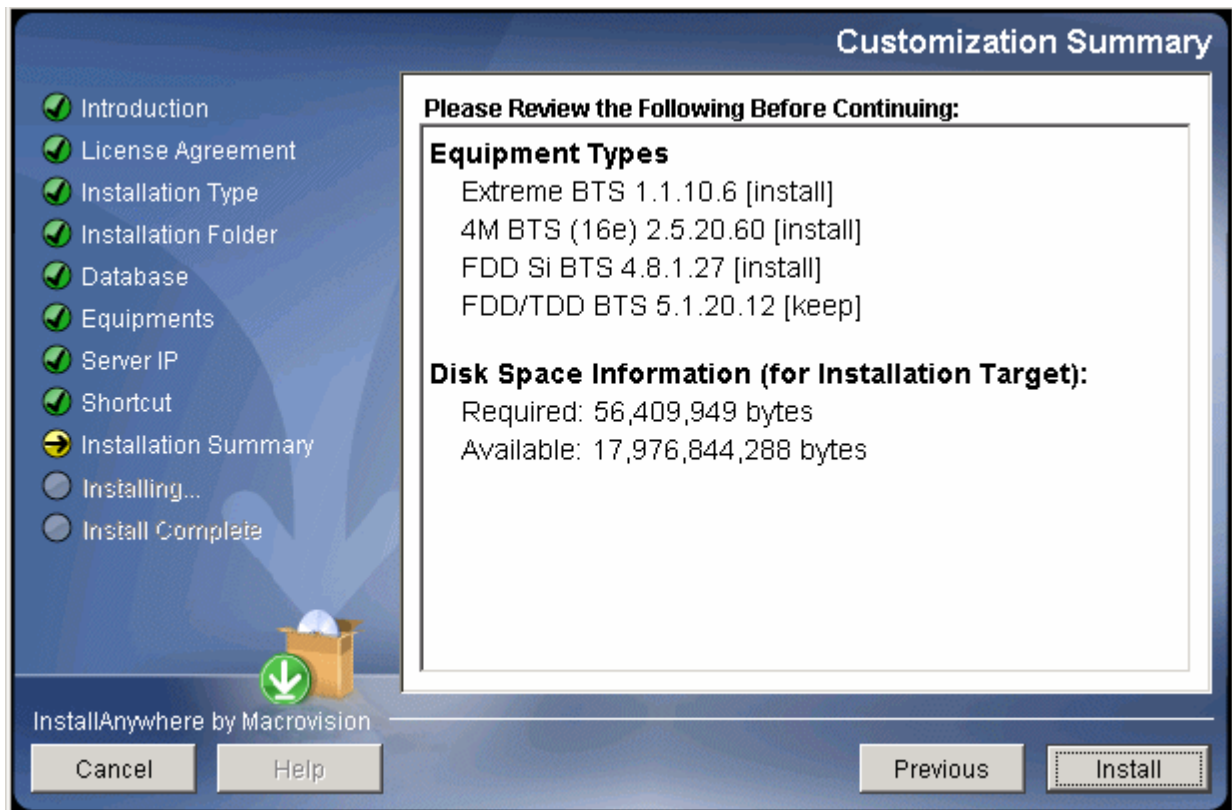


Figure 2-41: Customization Summary Window

- 8 Review the configuration. Click **Previous** if you want to return to a previous step and change your settings. Click **Install** when you are ready to proceed.

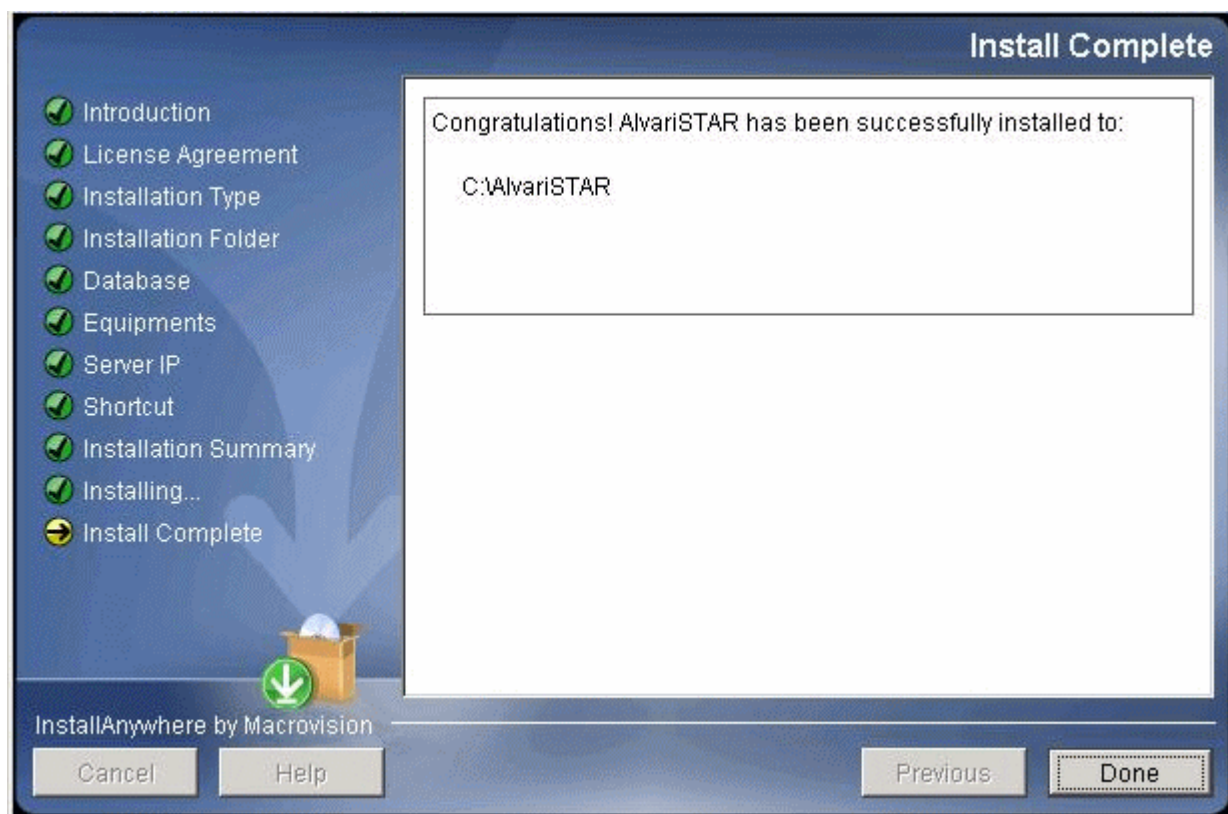
The *Installing AlvariSTAR* window is displayed.

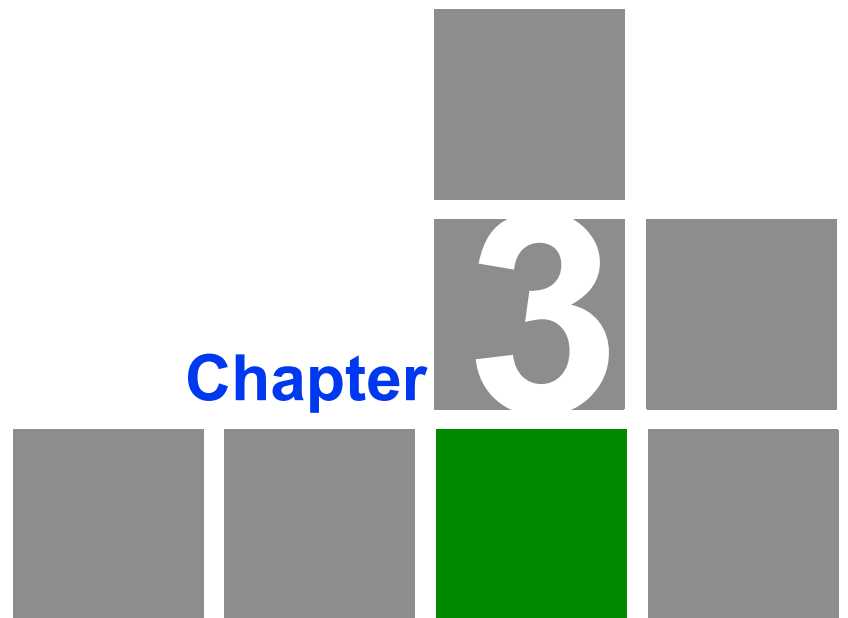
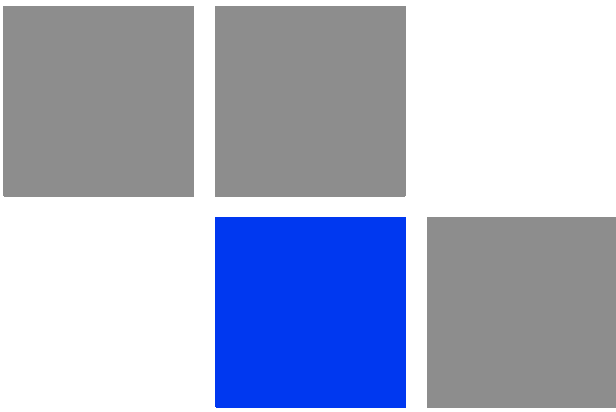


Figure 2-42: Installing AlvariSTAR Window

- 9 The installation process takes several minutes.

Once AlvariSTAR has been successfully installed the *Install Complete* window is displayed.

**Figure 2-43: Install Complete Window**



Server Installation and Upgrade: Unix Based OS

In This Chapter:

This chapter describes how to install or upgrade the AlvariSTAR Server Application and relevant device driver on Unix Based (Solaris X86/Sparc or Linux) operating systems.

- [“Overview” on page 72.](#)
- [“AlvariSTAR Server Installation” on page 73](#)
- [“Running AlvariSTAR” on page 104](#)
- [“Upgrading on AlvariSTAR Installation” on page 106](#)

3.1 Overview

The AlvariSTAR installation package installs the infrastructure and one or more device drivers, allowing connectivity to the different network elements. The package also includes an Oracle database installation kit. In case the deployment uses the embedded Oracle database on the same host, the "internal" database installation type should be selected. In case of a non-embedded database usage, the "external" database installation type should be selected. The AlvariSTAR infrastructure and at least one device driver must be installed.

Before starting installation, check whether AlvariSTAR has been installed previously, and if so, which version is installed. Also check which device is in use. It is possible to upgrade the device driver or install a driver for a new device at any time.

The install wizard searches for existing AlvariSTAR installations. If no previous installation is detected the system performs a **Full** installation and the installation program will install all necessary system components.

If an existing AlvariSTAR installation is detected, make sure that the migration path is kept in accordance with [Appendix A](#) of this manual.

You will need root credentials to install AlvariSTAR on a Unix based system.



NOTE

- All AlvariSTAR, Device Driver or Upgrade installation steps are saved in a log file <INSTALL_ROOT> server-install.log.
- All LDAP installation steps are saved in a log file <INSTALL_ROOT> ldap-install.log.

3.2 AlvariSTAR Server Installation

Before beginning the AlvariSTAR installation, you must check that you have all the necessary information and that you have performed all the tasks as outlined in [Section 3.2.1](#).

3.2.1 Pre-Installation Tasks

3.2.1.1 Check List

- The computer on which the server is installed must meet minimal hardware and software requirements. For further information refer to the Release Notes.
- The computer on which the AlvariSTAR Server is installed must be dedicated to running AlvariSTAR and Oracle in case of a single server deployment.
- For large network configurations using internal Oracle setups, disk partitioning is most recommended (see [Table 3-1](#)).

Table 3-1: Recommended Partitioning for Oracle Internal Setup

Physical Disk	Volume	Setup
Physical disk 1	Volume 1	OS, AlvariSTAR SW, Oracle SW
Physical disk 2	Volume 2 - RAID 0	Oracle tablespaces
Physical disk 3		
Physical disk 4	Volume 3	Oracle redo logs

- For external Oracle database setups, the database must be installed, configured, up and running and open for connections (see [Section 3.2.1.3](#)). In addition, you must contact the Oracle DBA and:
 - » Verify the Oracle server URL (IP, port, SID)
 - » Verify the Oracle system password
 - » Define the name for the AlvariSTAR schema. Follow the Oracle user policy.
 - » Define the password for the AlvariSTAR schema. Follow the Oracle password policy.

- Contact the system administrator and verify the following information:
 - » **Folder location:** Server installation requires 1.3GB disk space. Verify in which folder the software will be installed.
 - » **Root password:** Verify the root password.
 - » **Patch status:** Verify the patch status.

3.2.1.2 Limitations and Special Notes

Due to a bug in Sun Solaris JDK (bugid 4281163), the AlvariSTAR installation process requires access to a Sun X11 environment, even in cases when no Java graphics are displayed. To provide X11 access, do one of the following:

- 1 Install the software on a Solaris system with a graphics card, monitor and X Window System.
- 2 Install the software on a Solaris system remotely from a machine that is running X Window System (e.g. another Solaris workstation, X Window on Linux or Windows with X Window Server) - Make sure “xhost +” has been run on the target Solaris server in order to allow connections from X Terminals.



NOTE

If the installation folder is not created in the default destination, an AlvariSTAR folder will automatically be created within this folder.



NOTE

In order to log in as user root, enter: su followed by the root password from any Telnet/terminal session.

3.2.1.3 Installing and Configuring the External Oracle Database

The Oracle Database Configuration procedure consists of:

- 1 Installing the Oracle software on the Oracle DB Server, according to the instructions provided by Oracle.
- 2 Performing additional configuration instructions as described in this chapter.

3.2.1.3.1 Installing and Running the Oracle Database

- 3 Install and create an Oracle DB to be used by AlvariSTAR (instance). Make sure the created instance runs.
- 4 Configure the **Oracle TNS** service using Oracle Net8 Configuration Assistant or by manually editing the `%ORACLE_HOME%/network/admin/tnsnames.ora` file. Make sure that the local service name for the database is identical to the SID (System Identifier) of the database on the database server.
- 5 On the database server, check the Oracle initialization parameters in the file `init<InstanceSID>.ora`. AlvariSTAR usually works with the default database settings. For larger deployments and fine tuning alter the initialization file and make sure that the minimums below are met. We recommend checking all modifications to these files with your Oracle DBA.

```
Maximum SGA Size* (MB) = 3200 MB

processes =150

open_cursors = 1000
```

NOTE



The maximum SGA size should not exceed 70% of the physical memory.

- 6 When using a stand-alone server, the Oracle startup scripts must be placed before AlvariSTAR startup scripts (S76nmsproc).

```
#!/bin/sh

#

# Script to reside in /etc/init.d as "oracle"

# Create symbolic links in appropriate run-level directories

# ie. /etc/rc2.d

# to determine/control automatic startup and shutdown of

Oracle.

#

# Oracle startup must happen before the S76nmsproc

#
```

```

#this script is based on Oracle's dbstart and dbshut inherent
#scripts that must be edited to be used by Solaris (see
#inside script).

# In addition /var/opt/oracle/oratab must be set to support
#auto-start/stop.

#
#
#
#-----
#
# the user that oracle runs as
ORACLE_OWNER=oracle

# ORACLE_HOME (file system) path - needs to be set according
#to Oracle environment
ORACLE_HOME=/export/home/oracle/product/10.2.0/Db_1

PATH=${PATH}:$ORACLE_HOME/bin
export PATH

case $1 in
  'start')
    echo "Starting Oracle Databases"
    su - $ORACLE_OWNER -c $ORACLE_HOME/bin/dbstart
    su - $ORACLE_OWNER -c "$ORACLE_HOME/bin/lsnrctl start"
    ;;
  'stop')
    echo "Stopping Oracle Databases"
    su - $ORACLE_OWNER -c "$ORACLE_HOME/bin/lsnrctl stop"
    su - $ORACLE_OWNER -c $ORACLE_HOME/bin/dbshut
    ;;
  *)

```

```
        echo "usage: $0 {start|stop}"

        ;;

    esac

    exit
```

**NOTE**

These are guidelines. For large deployments we recommend that a qualified DBA fine tune the DB instance parameters.

3.2.1.3.2 Testing Oracle Client Connectivity

The AlvariSTAR installation DVD includes a java utility (oracleConnectionTest.zip) that can ensure that there is a connection available between the AlvariSTAR host and the Oracle host. The howTo.txt file explains how to use this utility.

3.2.2 Configuring Network Ports

The following ports between the server machine and the managed network equipment must be open.

Table 3-2: Network Ports Configuration

USE	PORT	PROTOCOL	DIRECTION	REMARKS
App server and managed equipment	161	SNMP	Outbound towards NE	
App server and managed equipment	162	SNMP	Inbound from NE	
Solaris Java VM relay	1092	UDP	Inbound	
App server and managed equipment	69	TFTP	Outbound towards NE	The TFTP request uses port 69 when going from the server to the managed equipment. The response from the equipment can use ANY port. This should be taken into account when hardening the servers.
App server and Oracle server (if exist)	1521	SQLNet	Inbound/Outbound between AlvariSTAR and database server	Oracle client configured port. Default: 1521
App server for northbound of SNMP traps	1610	SNMP	Outbound towards OSS	
App server for northbound service operations	8080	SOAP	Inbound/Outbound	This port is configurable. It can be changed by editing the file: <AlvariSTAR Root>/jboss\server\nms\deploy\jboss-web.deployer\server.xml
App server and Client	1098	RMI	Inbound/Outbound between client and server	
App server and Client	1099	RMI		
App server and Client	4444	RMI		
App server and Client	8093	RMI		

Table 3-2: Network Ports Configuration

USE	PORT	PROTOCOL	DIRECTION	REMARKS
AlvariSTAR client and managed equipment	23	TELNET	Outbound between client and NE	If the "Cut through" operation is in use, the AlvariSTAR client and managed equipment must have IP connectivity on port 23.
NetBIOS	137	netbios-ns	Inbound/ Outbound	
LDAP Server	10389	LDAP	Inbound/outbound between the AlvariSTAR server and the LDAP server	

3.2.3 Installing AlvariSTAR



NOTE

- All the installation steps are saved in a log file <INSTALL_ROOT> AlvariSTAR_InstallLog.log.
- Before installing AlvariSTAR with an Oracle DB, configure the database as described in [Section 3.2.1.3](#).

- 1 Log in as root with the following command:

```
su
```

- 2 To begin the installation:

- » Run the **setup.sh** file directly from the AlvariSTAR Install CD;
- » For FTP installations, copy the entire installation kit to your hard-drive and run **setup.sh**. You might have to set executable permissions on the setup.sh file and install.bin file. To do this use the following commands in the folder where the installation files reside:

```
chmod a+x setup.sh
chmod a+x install.bin
```

- » The setup.sh file can be found in Disk1.
- » The install.bin file can be found in
 - ◇ Disk1/InstData/Solaris/VM/ for Sparc platforms
 - ◇ Disk1/InstData/SolarisX86/VM for X86 platforms



CAUTION

When copying or downloading the installation kit to a local disk, make sure you copy the entire content of the kit - not only the setup.sh file.

InstallAnywhere is activated.

- 3 Wait until InstallAnywhere has completed the initialization. An *Introduction* window is displayed.

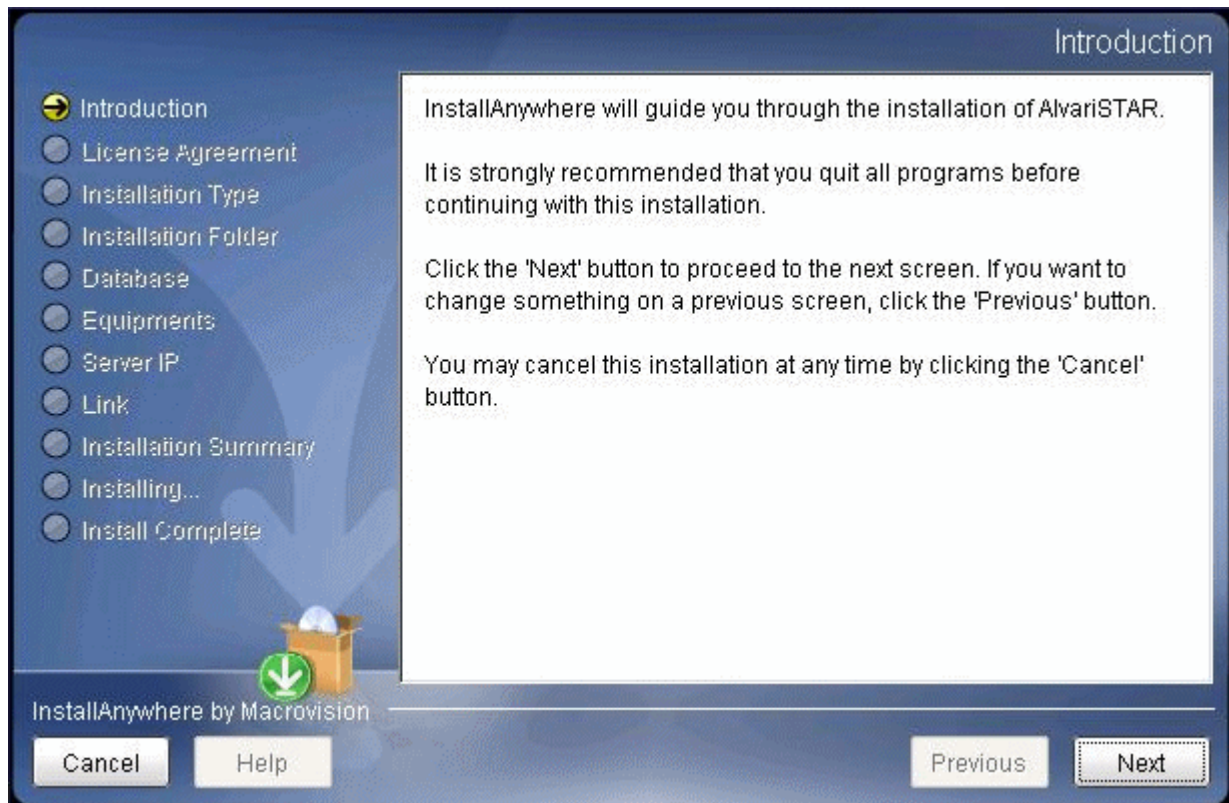


Figure 3-1: Introduction Window

- 4 Review the information and click **Next**.

The wizard searches for existing AlvariSTAR installations. If an existing AlvariSTAR installation is detected, the system will automatically switch to upgrade mode (see [Section 3.4](#)).

The *License Agreement* window is displayed.

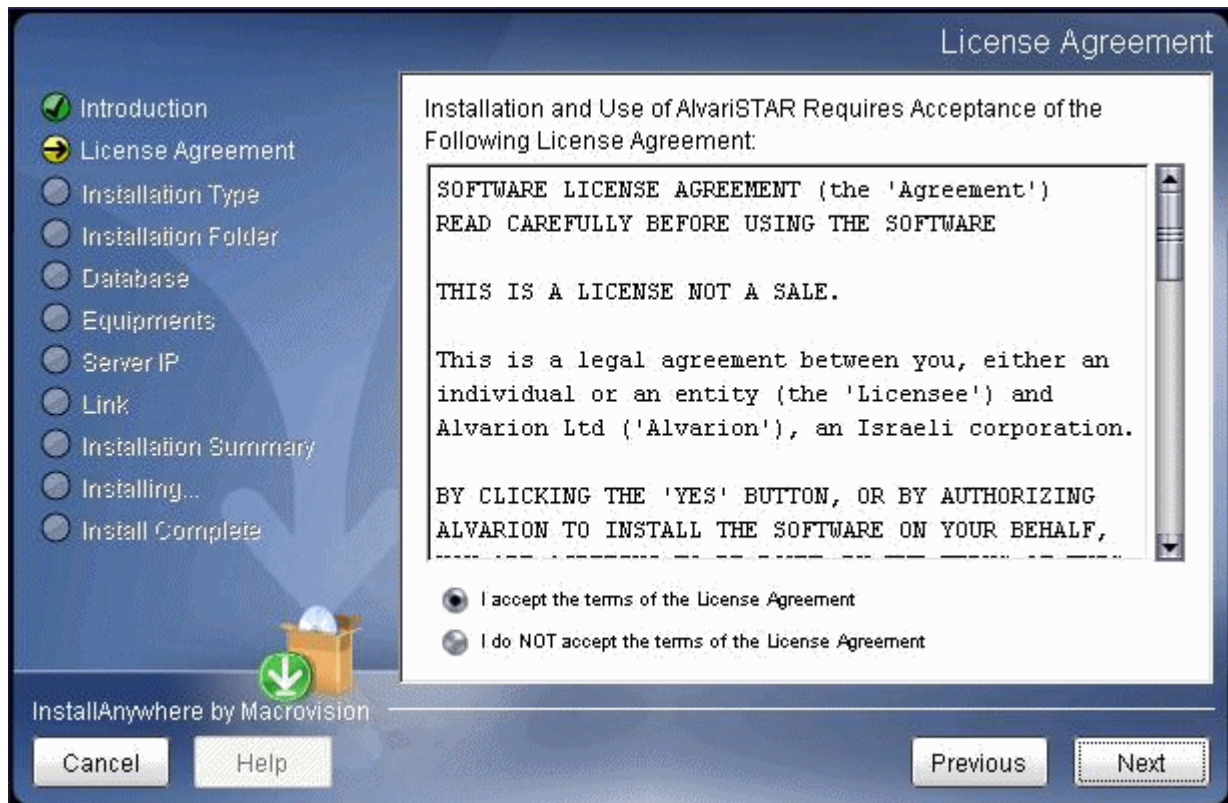


Figure 3-2: License Agreement Window

- 5 Accept the terms of the license agreement and click **Next**.

If no existing AlvariSTAR installation is detected, the *Choose Install Set* window is displayed.

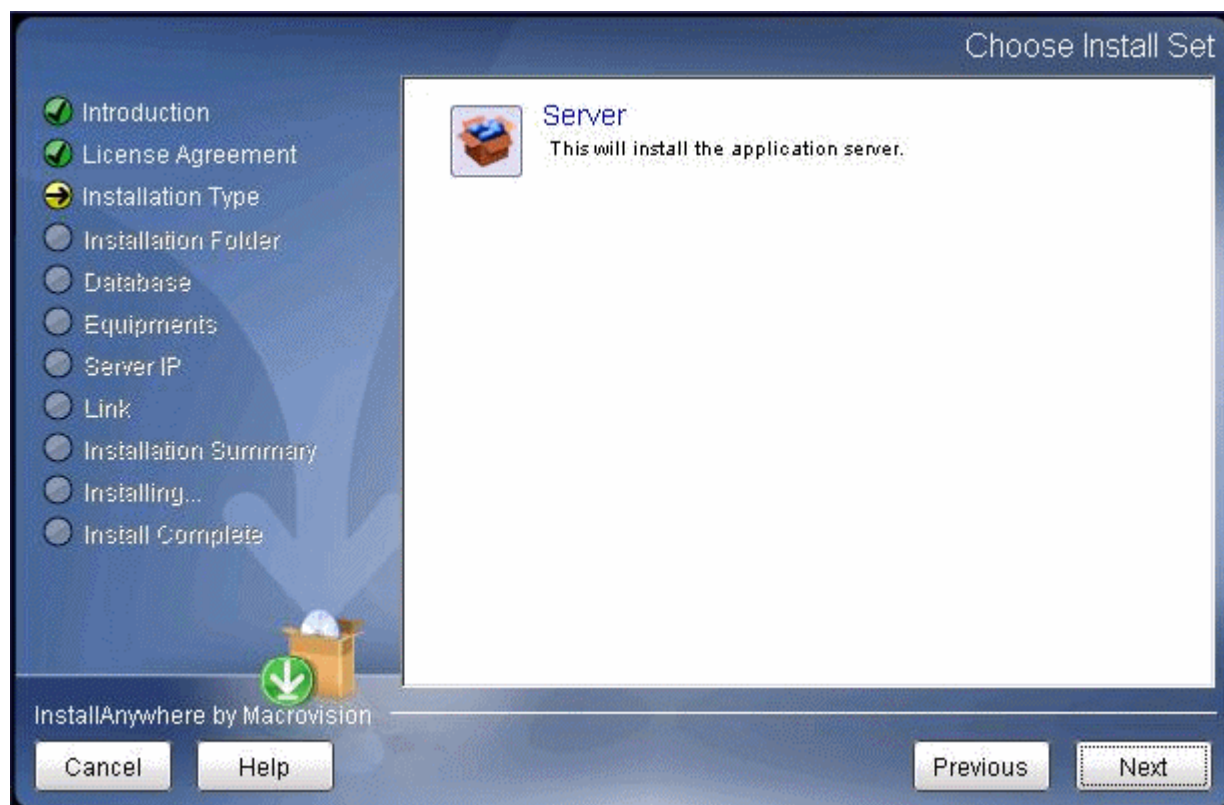


Figure 3-3: Choose Install Set Window

- 6 Click **Next**.

The *Choose Install Folder* window is displayed.

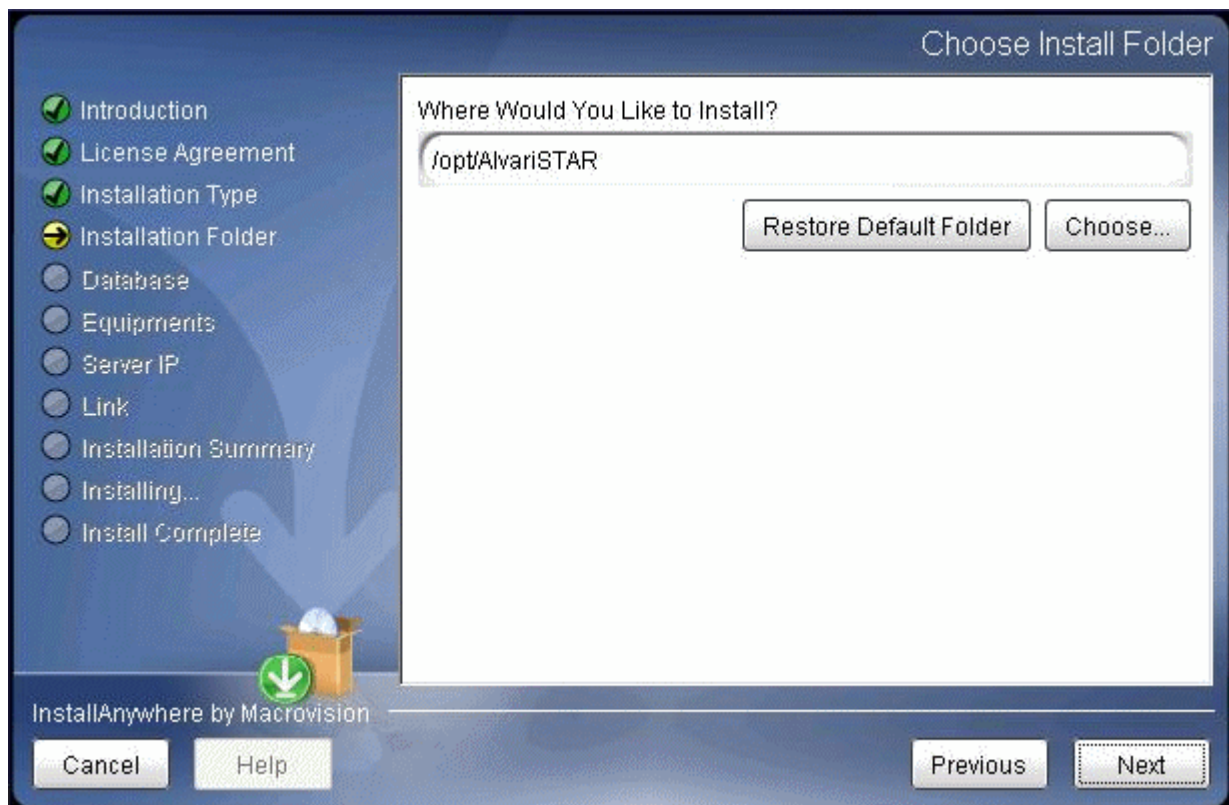


Figure 3-4: Choose Install Folder Window

- 7 To revert to the default destination folder, click **Restore Default Folder**. To change the directory, either enter the complete path or, click **Choose** to locate an existing directory and click **Next**.



NOTE

- If a folder with the same name already exists on the computer, a warning to save all information in the folder otherwise it will be deleted is displayed.
- If the folder selected is not the default destination folder, an AlvariSTAR folder will automatically be created within this folder.

The *Database Installation Type* is displayed.

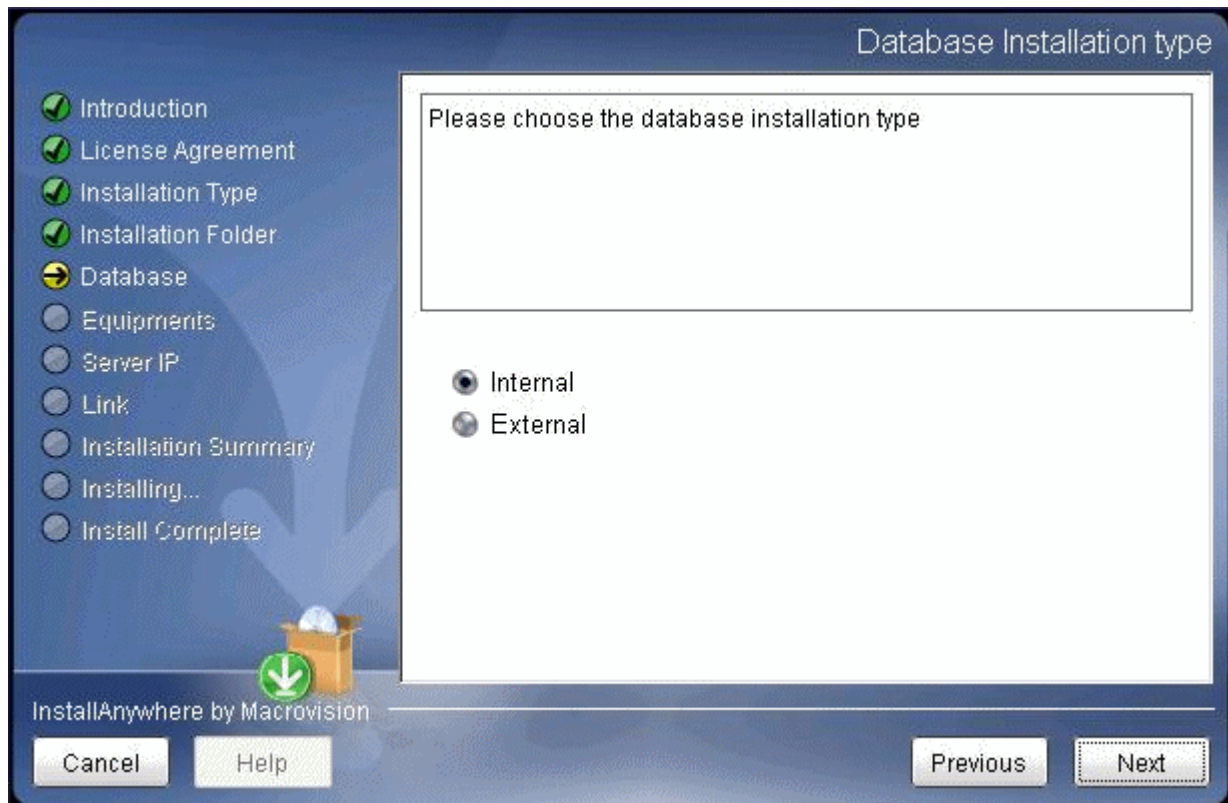


Figure 3-5: Database Installation Type Window

- 8 Select **Internal** for the Oracle embedded installation or **External** if you are planning to use an Oracle stand alone database. Then click Next to continue.

NOTE



The Oracle internal installation is not supported on Linux distributions.

- a If you select Internal, the following window is displayed

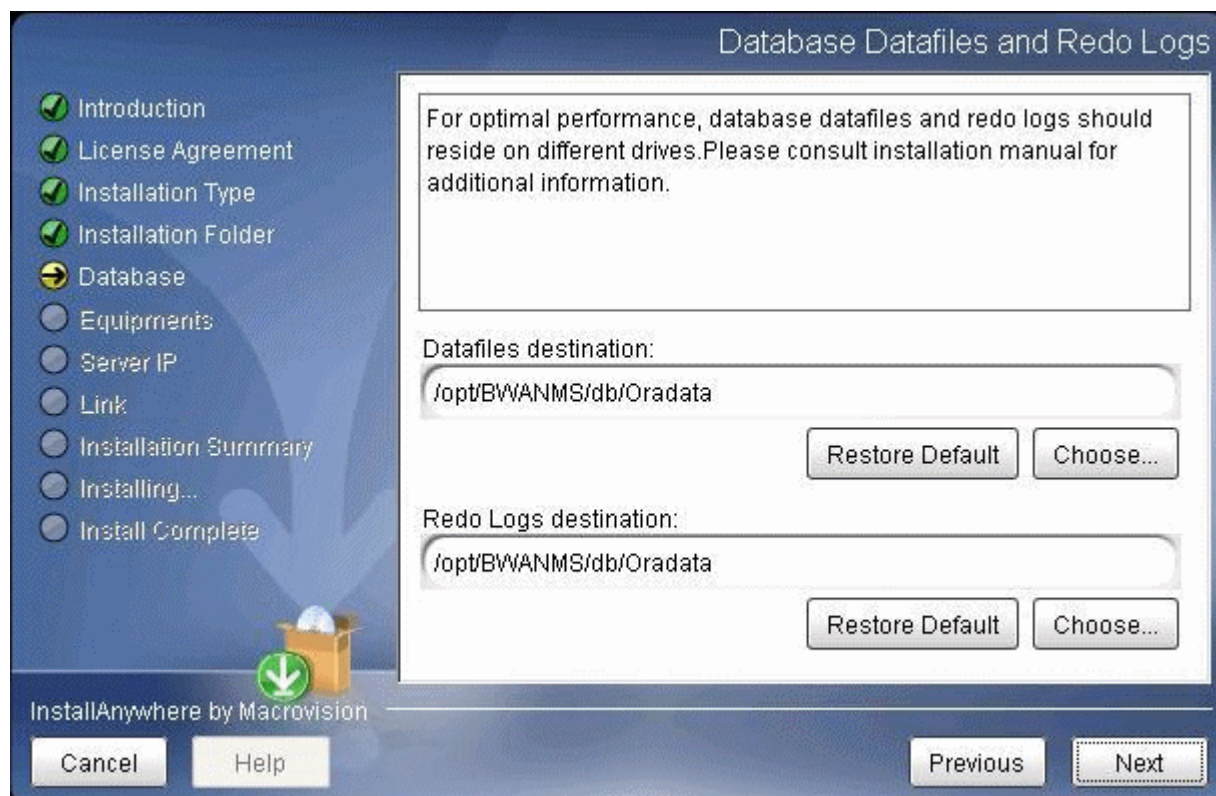


Figure 3-6: Database Datafiles and Redo Logs

Enter a location for the database datafiles and redo logs. If you use the same location for both, you will also receive the following warning.

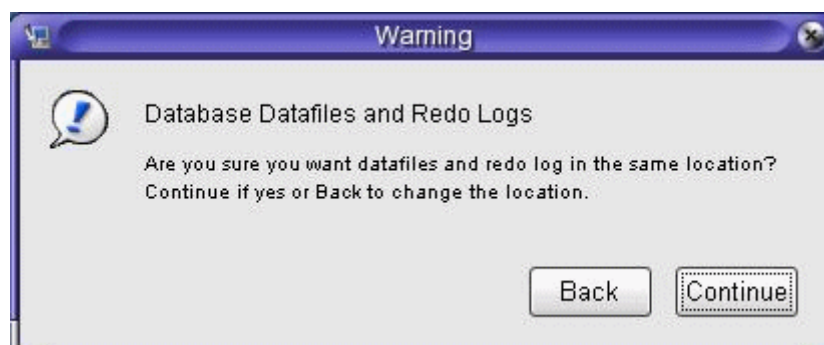


Figure 3-7: Datafiles and Redo Logs Warning

Next, enter the network configuration for the database. If you use the loopback IP address, no external application will be able to connect to this database.

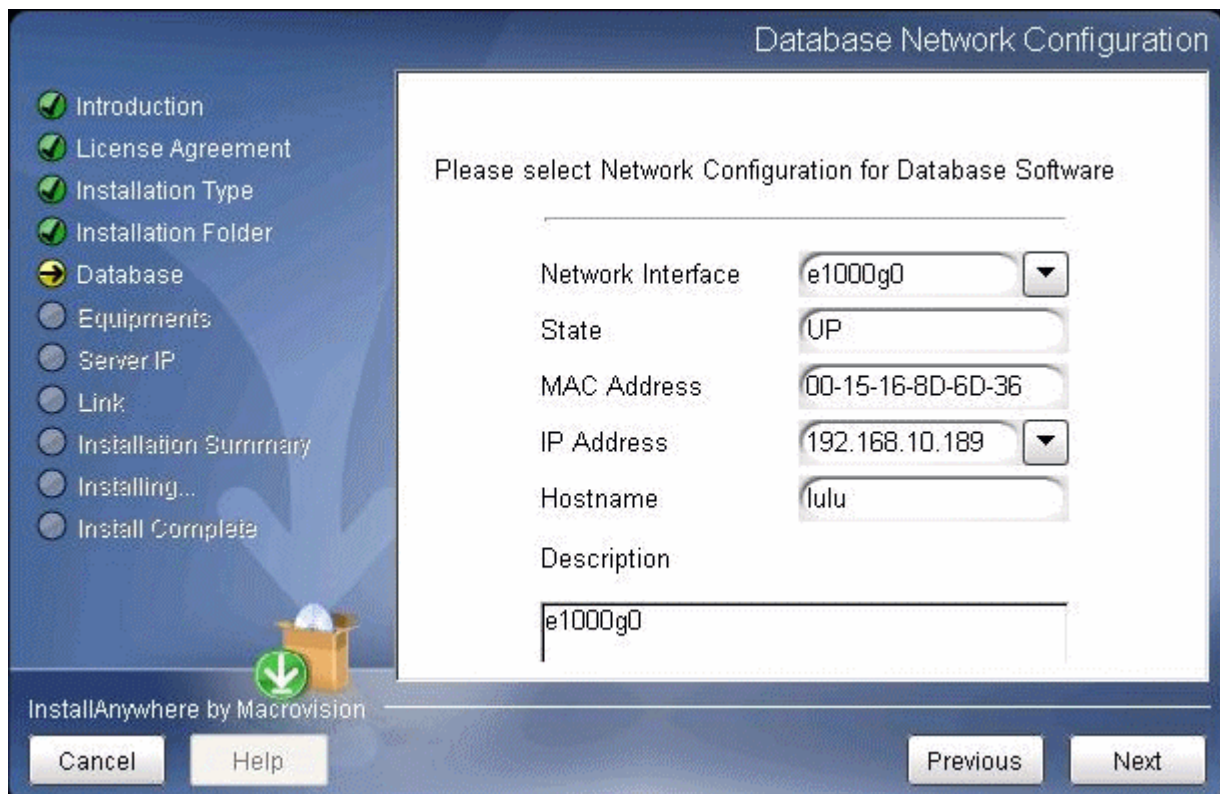


Figure 3-8: Database Network Configuration

After you enter the network interface settings, click **Next**. The following window is displayed.

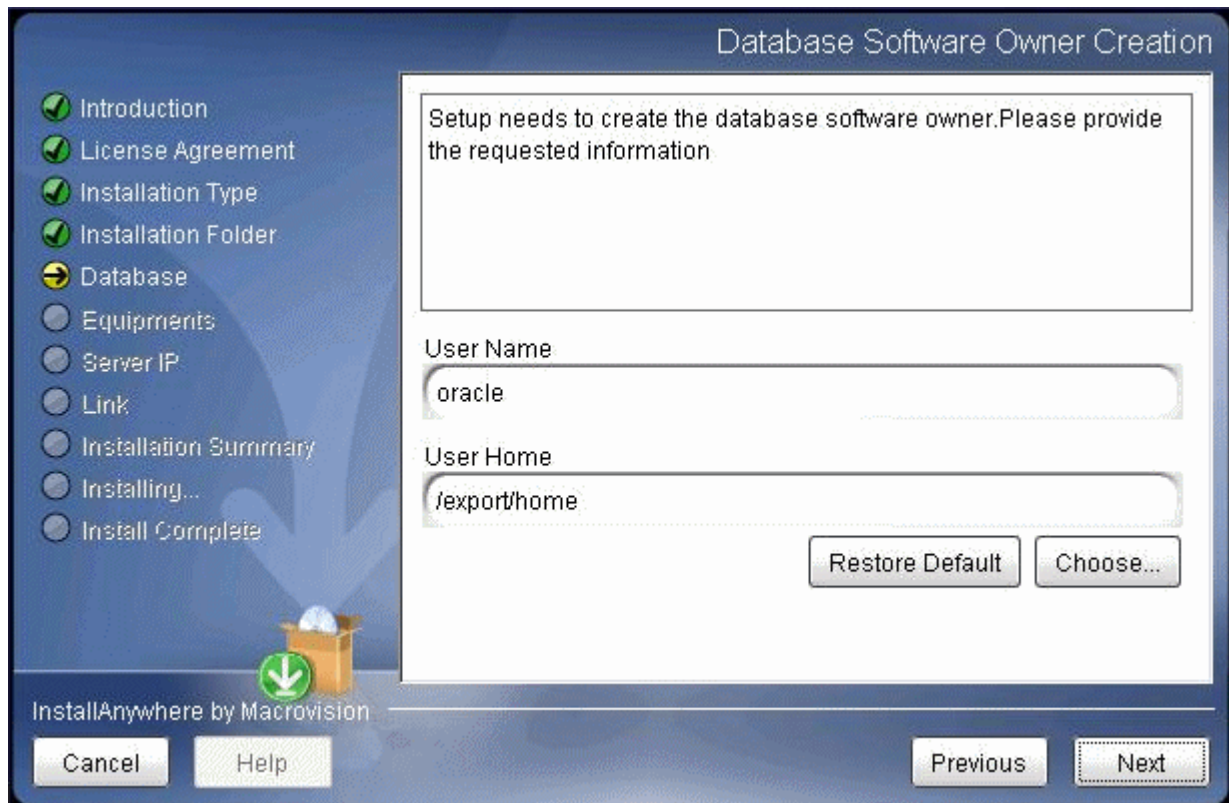
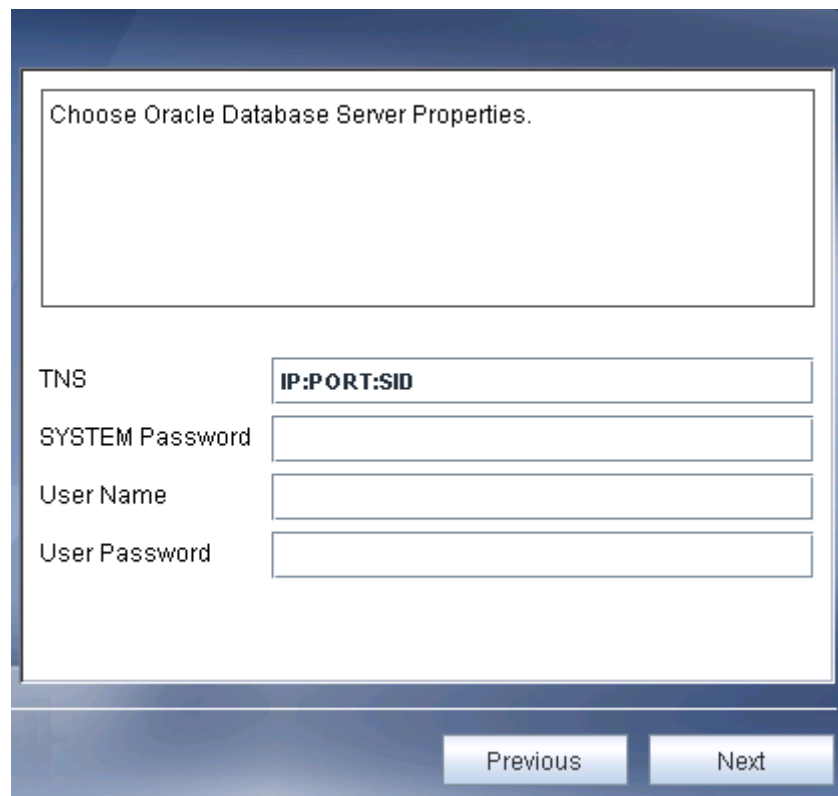


Figure 3-9: Database Software Owner Creation

Enter your username and home folder path and click **Next**.

- b** If you chose an external database, you have to specify the login credentials (see [Figure 3-10](#)).

The image shows a window titled "Choose Oracle Database Server Properties." with a large empty text area at the top. Below this are four labeled input fields: "TNS" with a text box containing "IP:PORT:SID", "SYSTEM Password", "User Name", and "User Password". At the bottom right are two buttons labeled "Previous" and "Next".

Choose Oracle Database Server Properties.

TNS

SYSTEM Password

User Name

User Password

Previous Next

Figure 3-10: Oracle Properties Window

Define the parameters as follows and click **Next**:

- » In the **TNS** field, enter the ID of the computer on which the Oracle DB is running, in the format IP:port:SID

where:

- ◇ IP = IP address of the machine where the Oracle DB is installed. PORT = port number to access DB (default = 1521)
- ◇ SID = Oracle System Identifier.

For example, a TNS may look like the following:

10.0.22.200:1521:orcl

- » In the **SYSTEM Password** field, enter the Oracle system password that is necessary in order to create an AlvariSTAR user in Oracle.
- » In the **Username** field, enter a username for the AlvariSTAR schema within the Oracle instance. Do not specify an existing or reserved username (e.g. system, sys, internal, scott). The username and password can only contain characters from the installation database character set and must be no more than 30 characters long.
- » In the **Password** field, enter a password for the user that was defined in the Username field.

**NOTE**

If the username already exists within the Oracle instance the user will be dropped and recreated. All the objects owned by the user will be removed.

Wait while the connection to the database is tested.

**NOTE**

If the database is not installed and running or values are incorrect, connection to the database fails and an error message is displayed.

Next, The *Device Driver Selector* window is displayed.

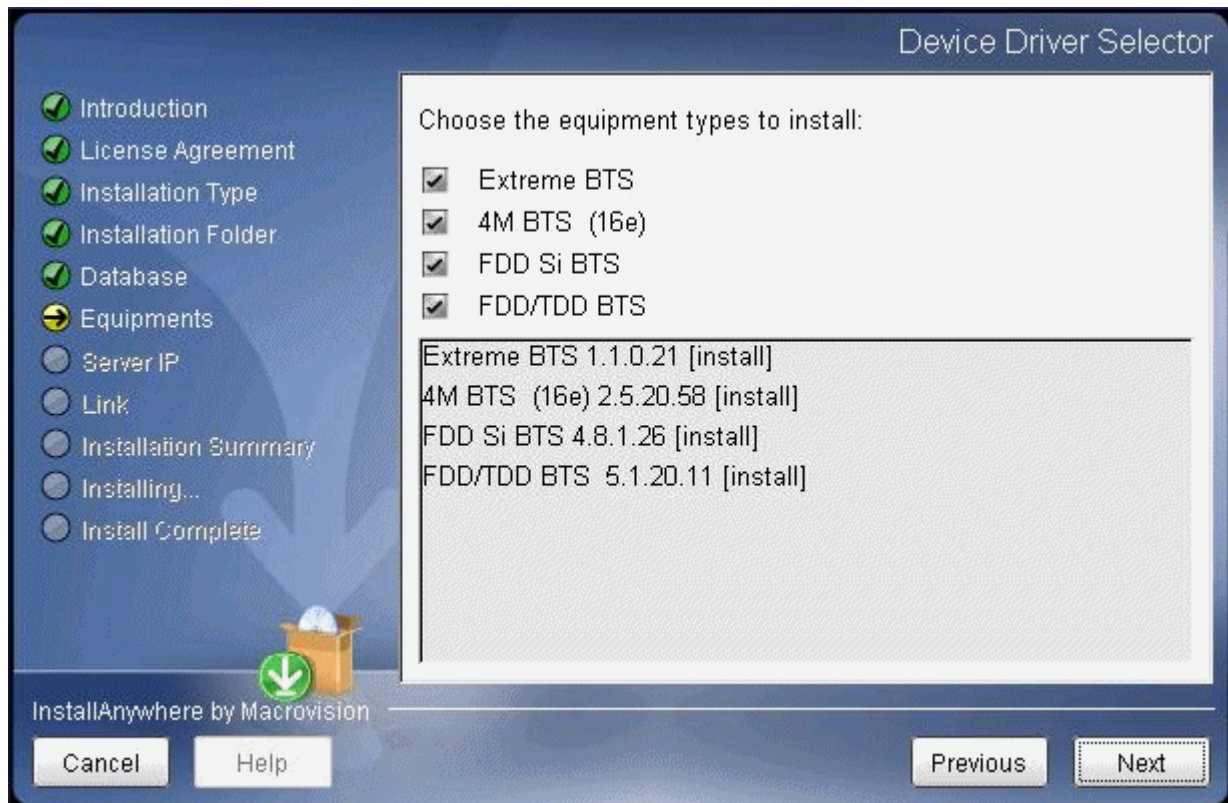


Figure 3-11: Device Driver Selector Window

- 9 Select the equipment you wish to install and click **Next**.

The installation will be performed using the root account on a folder with root permissions.

Next, the *Server IP Selector* window is displayed.

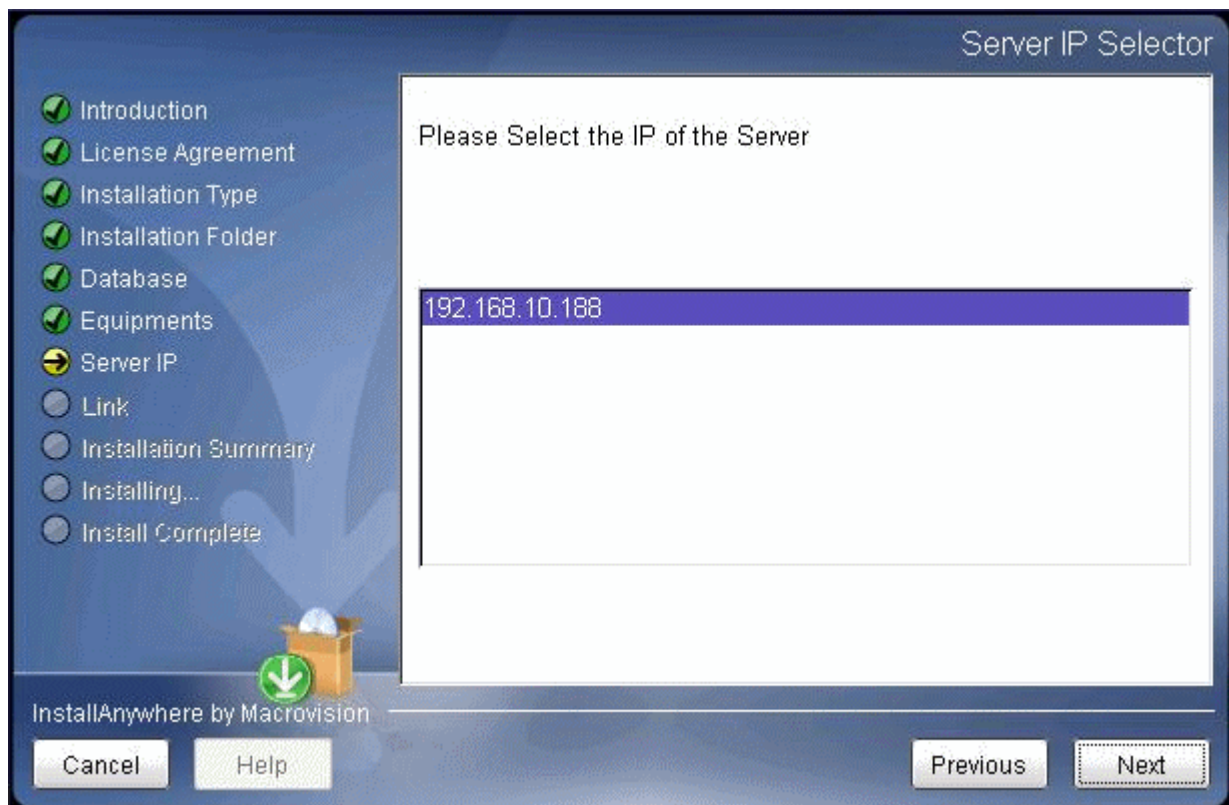


Figure 3-12: Select Server IP Window



NOTE

If there is more than one NIC (network interface card) installed in the system, a list of the IP addresses for each NIC is displayed in the *Select Server IP* window.

- 10** Select the IP address on which the server will listen to client requests and click **Next**.

The *Installation Summary* window is displayed.

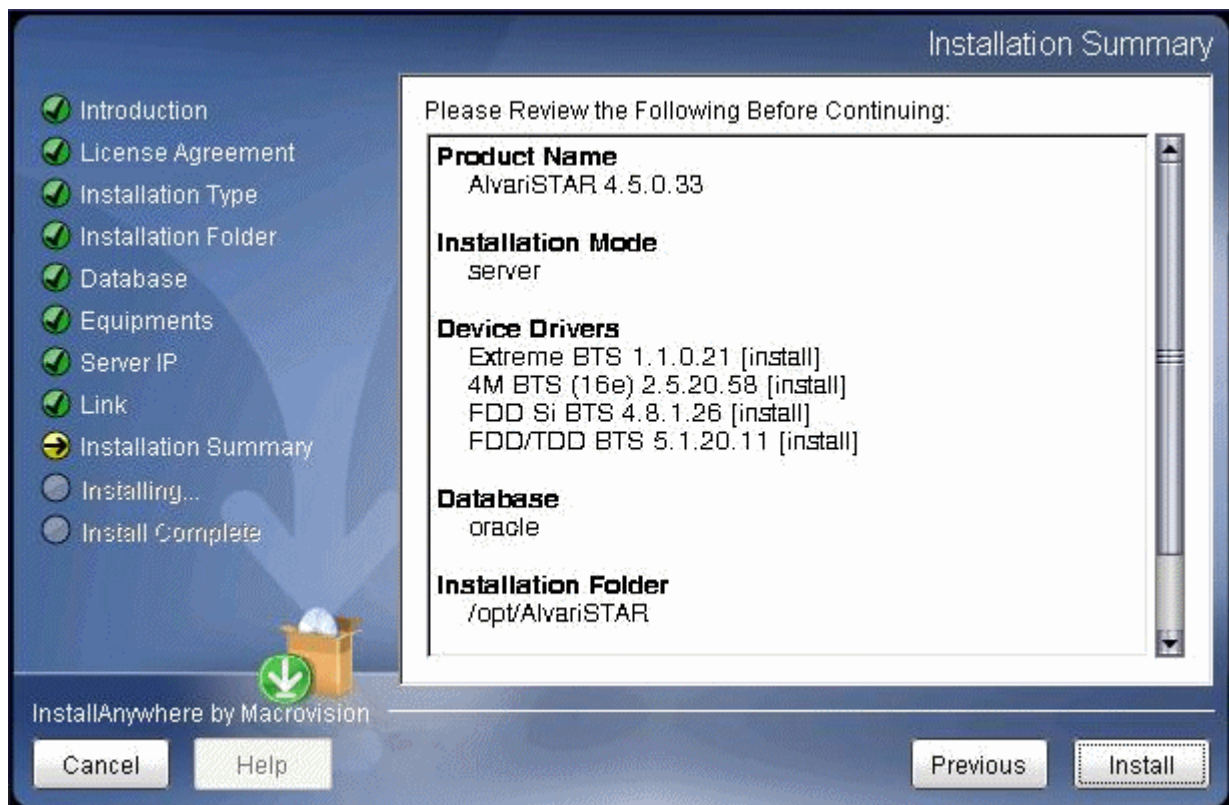


Figure 3-13: Installation Summary Window

- 11 Review the information and if the definitions are all correct, click **Install**. Click **Previous** to go back to change a definition.

The *Installing AlvariSTAR* window is displayed.

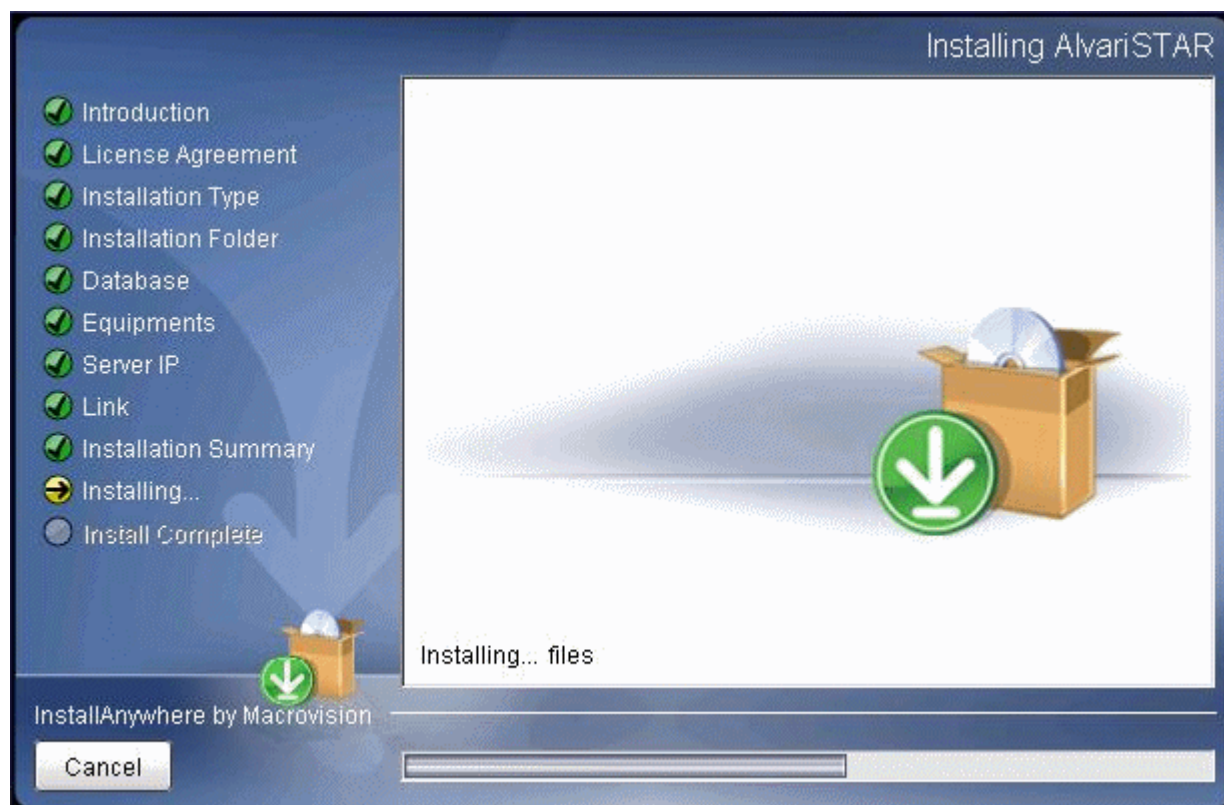


Figure 3-14: Installing AlvariSTAR Window

The inThe startup configuration files are loaded and the *Install Complete* window is displayed.

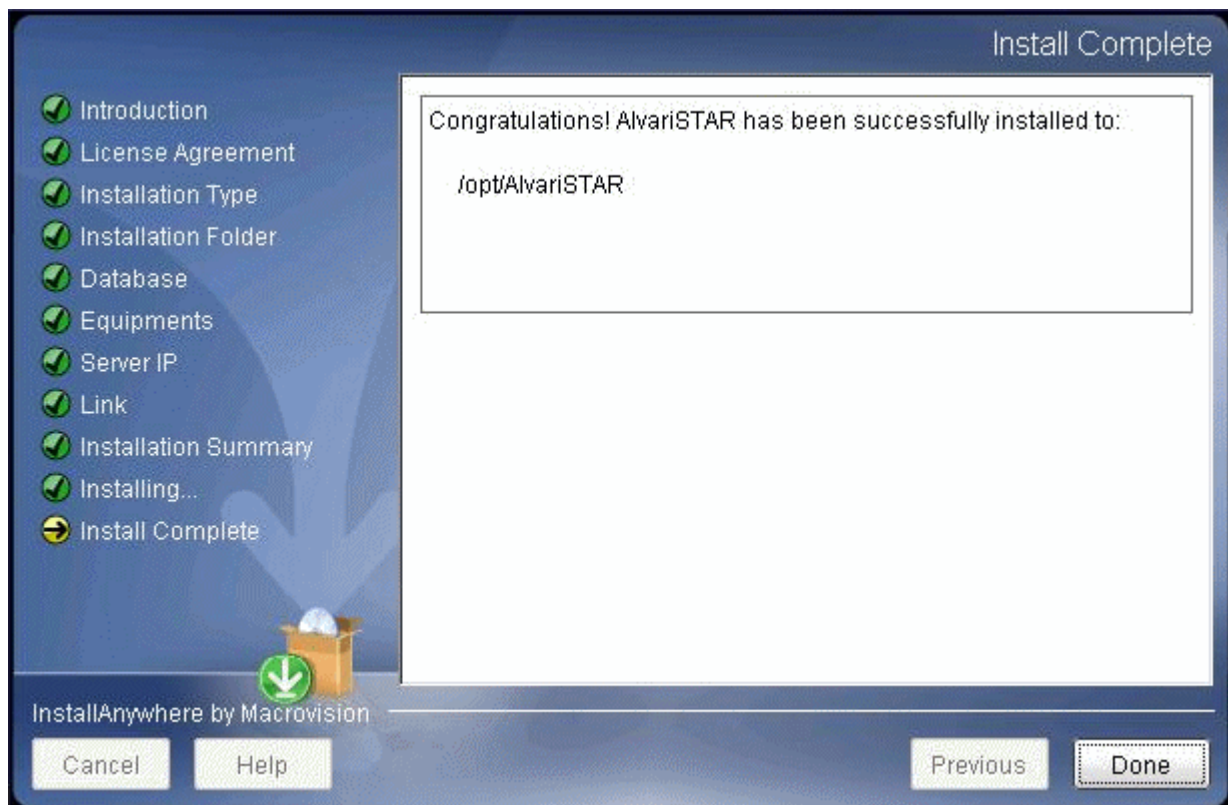


Figure 3-15: Install Complete Window

- 12** Click **Done** to exit the installer.



IMPORTANT

After the installation is completed, it is necessary to start the AlvariSTAR server manually (see [Section 3.3](#)).

3.2.4 Post-installation Tasks

3.2.4.1 Configuring Global Properties

The Application Server host must be configured.



To configure the global properties:

- 1 Shut down the AlvariSTAR Application Server.
- 2 Edit the the appserver.properties file
`<AlvariSTARRoot>\jboss\server\nms\deploy\bwanms.sar\conf\appserver.pr
 operties`and modify the following parameters:

Table 3-3: Application Server Properties Parameters

Parameter	Default Value	Functionality
com.bwanms.serviceAffectingWarning	false	If true, a message confirming the device driver, is displayed whenever you click Apply .
com.bwanms.fault.event.lifeTime	30 (secs)	The minimum time an event is displayed once it has been cleared or acknowledged. Note: The display time varies depending on at which point of the 1 minute refresh cycle the event was cleared/acknowledged.
Application Log Aging		
com.bwanms.logging.retainsDays	10	The number of days that log files are saved for display
com.bwanms.logging.maxFileSize	2 GB	The maximum size of all the log files combined. Note: The smaller of the 2 values, takes effect
Performance Collection		
com.bwanms.pmcollection.exportFolder	<AlvariSTAR Root>\filesystem\export	The name of the folder to which the performance files are saved.

- 3 Edit the the email.properties file `<AlvariSTAR
Root>\jboss\server\nms\deploy\bwanms.sar\conf\email.properties` and modify the following parameters:

Table 3-4: Mail Settings Parameters

Parameter	Default Value	Functionality
mail.transport.protocol	smtp	The mail transport protocol. AlvariSTAR currently only supports smtp
mail.smtp.host		The smtp mail host
mail.smtp.port		The smtp mail port
mail.smtp.starttls.enable	false	If true, activates a data encryption protocol
mail.smtp.auth	false	If true, requires using an authenticated email account
mail.smtp.user		User name if authentication is required
mail.smtp.password		Password if authentication is required
mail.debug	false	If true, an entry is added to the log file, everytime an email is sent

- 4 Edit the rb.properties file <AlvariSTAR Root>\jboss\server\nms\deploy\bwanms.sar\conf\rb.properties and modify the following parameters related to the device driver:

Table 3-5: RB Parameters

Parameter	Default Value	Functionality
FAULT		
com.bwanms.rb.ddi.disableSUSysTrap	true	If true, AlvariSTAR does not generate network management system traps for the SU. Traps that come from the device itself, are processed. If false, AlvariSTAR will generate events for the SU as well.
com.bwanms.rb.ddi.disabledTrap		A list of SUs for which AlvariSTAR does not treat traps generated by the device. The format is trap source . trap specific. eg. SU.101, SU.102.
TFTP (applicable for BreezeMAX equipment only)		
com.bwanms.rb.ddi.downloadConfigurationFile.tftpDefaultTimeout	5000 (ms)	The default timeout for configuration file download.

Table 3-5: RB Parameters

Parameter	Default Value	Functionality
com.bwanms.rb.ddi.downloadConfigurationFile.tftpDefaultRetries	3	The number of TFTP retries permitted for configuration file download.
com.bwanms.rb.tasks.softwareupgrade.tftpDefaultTimeout	5000 (ms)	The default timeout for software upgrade file download
com.bwanms.rb.tasks.softwareupgrade.tftpDefaultRetries	3	The number of TFTP retries permitted for software upgrade file download.

- 5 If the TFTP Server IP address needs to be changed (for example: if there are separate networks for WiMAX and Client/Server),

- » Open the <AlvariSTAR Root>\jboss\server\nms\deploy\bwanms.sar\META-INF\jboss-service.xml file and locate the following text:

```
<mbean code="com.bwanms.services.ejb.TFTPManagerService"
      name="bwanms:service=TFTPManagerService">
    <attribute name="WorkingDir">tftp</attribute>
    <attribute
      name="IPAddress">${jboss.bind.address}</attribute>
    <attribute name="Port">69</attribute>

    <depends>bwanms:service=PropertiesManagerService</depends>
  </mbean>
```

and replace the "\${jboss.bind.address}" token with the required IP.

OR

- » Edit the <AlvariSTAR Root>/watchdog/watchdog.properties file.

- 6 Restart the AlvariSTAR Application Server.

3.2.4.2 Synchronizing the Time Zone Settings

In order for the system to run smoothly, the internal clocks of the client machine and the server machine must be synchronized. After AlvariSTAR is installed you must make sure that both client and server are set to the same GMT time and have the same time zone settings.

**To set the internal clock:**

- 1 Log in as user root.
- 2 Type `date -u`
GMT according to the clock in the computer is displayed in the following format:
`[[mmdd] HHMM | mmddHHMM [cc] yy] [.SS]`

where mm is the month, dd the day, HH the hour and MM the minutes.
- 3 Verify that this is the same time as GMT and if not, change the parameters accordingly.
- 4 Type `tzselect` and enter the correct regional time.
- 5 After setting the time zone, type `date` to confirm correct time setting.

**NOTE**

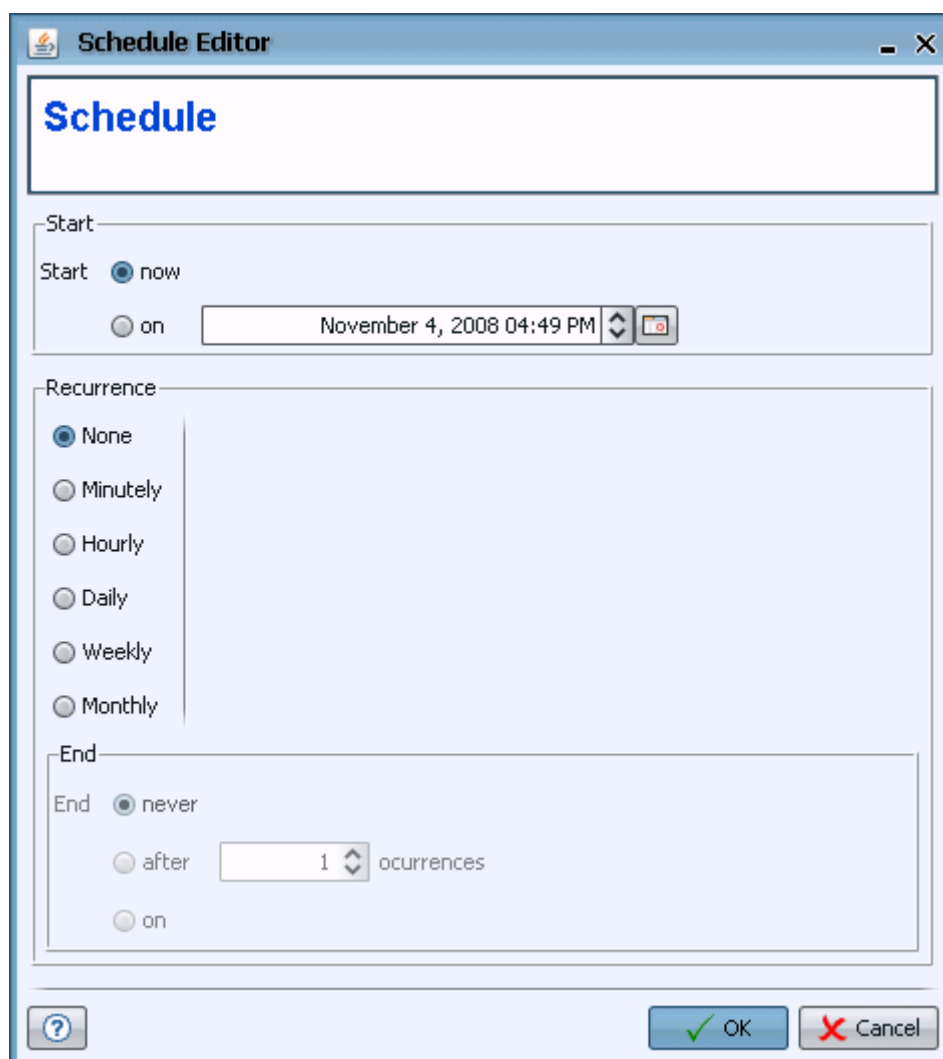
In order to log in as user root, enter: `su` followed by the root password from any Telnet/terminal session.

3.2.4.2.1 Verifying Server and Client Time

Because of potential inconsistencies with daylight saving definitions, after setting the times in the operating system, you must verify that the server application and client application are running on the same time and tune if necessary.

**To verify server and client time:**

- 1 To verify server time, open the log file
`<AlvariSTAR Root>/jboss/server/nms/deploy/jboss-web.deployer/server.xml`
and check the last date stamp.
- 2 To view the client time, select **Network Scan** from the *Task Manager* window.
The client time is the time displayed in the *Schedule Editor* (Figure 3-16).

**Figure 3-16: Schedule Editor**

If after setting the times in the operating system, there are differences between the server application, client application or operating system time, it is necessary to tune the server and client times to override the daylight saving mechanism and eliminate inconsistencies.

3.2.4.3 Installing the License

AlvariSTAR is supplied with a default license that is limited in time and in the number of devices. If you obtained a permanent license from the supplier, refer to the *AlvariSTAR User Manual* for instructions on how to install it.

3.2.4.4 Configuring the Web Portal

The AlvariSTAR server runs a web portal which enables users to access all the applications in Star Management Suite via Java Web Start software framework (see the Remote Access section in the user manual for more information). The web portal can be accessed by entering the following URL in a web browser:

```
http://<AlvariSTAR IP Address>:8080/starsuite
```



Figure 3-17: The Web Portal

By default, all the applications are visible in the portal and the AlvariSTAR link is working. However, the web portal's interface must be configured depending on which applications are installed and where they are installed. For this purpose, you must edit the following file:

```
<AlvariSTAR folder>\jboss\server\nms\deploy\starsuite.war\ConfigApps.js
```

A typical configuration is described below:

```
// Define internal links for applications //
```

```
//1.Alvarion01 application
apps['Alvarion01']['title'] = "StarACS";
apps['Alvarion01']['link'] =
    "http://127.0.0.1/StarACS/Login.aspx";
apps['Alvarion01']['visible'] = true;

//2.Alvarion02 application
apps['Alvarion02']['title'] = "StarQuality";
apps['Alvarion02']['link'] = "http://127.0.0.1";
apps['Alvarion02']['visible'] = true;

//3.Alvarion03 application
apps['Alvarion03']['title'] = "StarReport";
apps['Alvarion03']['link'] =
    "http://127.0.0.1:8080/InfoViewApp/logon.jsp";
apps['Alvarion03']['visible'] = true;

//4.Alvarion04 application
apps['Alvarion04']['title'] = "CSR";
apps['Alvarion04']['link'] =
    "http://127.0.0.1/CSR/Login.aspx";
apps['Alvarion04']['visible'] = true;

//5.Alvarion05 application
apps['Alvarion05']['title'] = "AlvariSTAR";
apps['Alvarion05']['link'] =
    "http://<NMS_SERVER_IP>:8080/webstart/client_<NMS_SERVER_I
    P>.jnlp";
apps['Alvarion05']['visible'] = true;

//Applications Order
```

```
apps_order = new Array(4,2,5,1,3);
```

Each application must have 3 parameters configured:

- 1 **link** - The URL used to access the application via Java Web Start. An empty link will determine the icon to be grayed out.
- 2 **visible** - Indicates whether the application's icon is visible by setting the value to 'true' for visible and 'false' for hidden.
- 3 **title** - Indicates the title that is displayed under the icon when hovering with the mouse cursor over it.

The order in which the applications are displayed on the web Portal's interface can be adjusted using the **apps_order** parameter as shown above.

3.3 Running AlvariSTAR

The Application Server automatically runs as Daemon.

3.3.1 Manually Starting and Stopping the AlvariSTAR Daemon

In order to start the AlvariSTAR server daemon after a manual stop use the following command in superuser (root) mode:

```
/etc/rc2.d/S76nmsproc start
```

In order to manually stop the AlvariSTAR server daemon (for maintenance or other tasks) use the following command in superuser (root) mode:

```
/etc/rc2.d/S76nmsproc stop
```



NOTE

In order to log in as user root, enter: su followed by the root password from any Telnet/terminal session.

The AlvariSTAR server daemon also starts the ldap server and the watchdog. For further information see the Administration section in the *AlvariSTAR User Manual*.

3.3.2 Verifying the Application Server State

In order to confirm that the server is up and running, log in as the user installing AlvariSTAR and perform both of the following steps:

- 1 Use the following UNIX command:

```
ps -aef | grep java
```

Verify that both the AlvariSTAR and LDAP servers are listed as running in /opt/AlvariSTAR.

- 2 Open the file:

```
<AlvariSTAR Root>/jboss/server/nms/log/server.log
```

and locate a line that includes information as to when the server started.

For example:[org.jboss.system.server.Server] JBoss (MX MicroKernel)[4.2.3.GA (build: SVNTag=JBoss_4_2_3_GA date=200807181439)] Started in 1m:48s:969ms

where: 200807181439 is the date when the server started and 1m:48s:969ms is the time that it took for the server to start.

3.4 Upgrading on AlvariSTAR Installation

Upgrading an AlvariSTAR server upgrades the database and replaces the software with the latest version. Versions earlier than version 3.5 cannot be upgraded automatically. The software must first be upgraded to version 3.5.



IMPORTANT

Refer to the Release Notes for additional upgrade pre-requisites.

3.4.1 Upgrading AlvariSTAR

If version 3.5 or higher of AlvariSTAR Server installation with Oracle database is detected on your system, the installation wizard will automatically start to upgrade the installation. The installer automatically saves and upgrades the data while keeping the same host and database.

NOTE



MySQL based installations can only be upgraded up to version 4.0/4.1.



IMPORTANT

Do not uninstall the previous version manually. Install the current version on top of the previous installation.

Some security features in version 4.x differ from those in version 3.5. For further information about upgrading from version 3.5, see [Appendix B](#).



To upgrade an AlvariSTAR installation:

- 1 Log in as the **User** who owns the AlvariSTAR installation.

2 To begin the installation:

- » Run the **setup.sh** file directly from the AlvariSTAR Install CD;
- » For FTP installations, copy the entire installation kit to your hard-drive and run **setup.sh**. You might have to set executable permissions on the setup.sh file and install.bin file. To do this use the following commands in the folder where the installation files reside:

```
chmod a+x setup.sh
```
- » The setup.sh file can be found in the Disk1 folder

InstallAnywhere is activated.

3 Wait until InstallAnywhere has completed the initialization. An *Introduction* window is displayed.

An *Introduction* window is displayed.



NOTE

During installation, a console screen is displayed in the background behind the installation windows. This screen does not require user intervention and should be ignored.

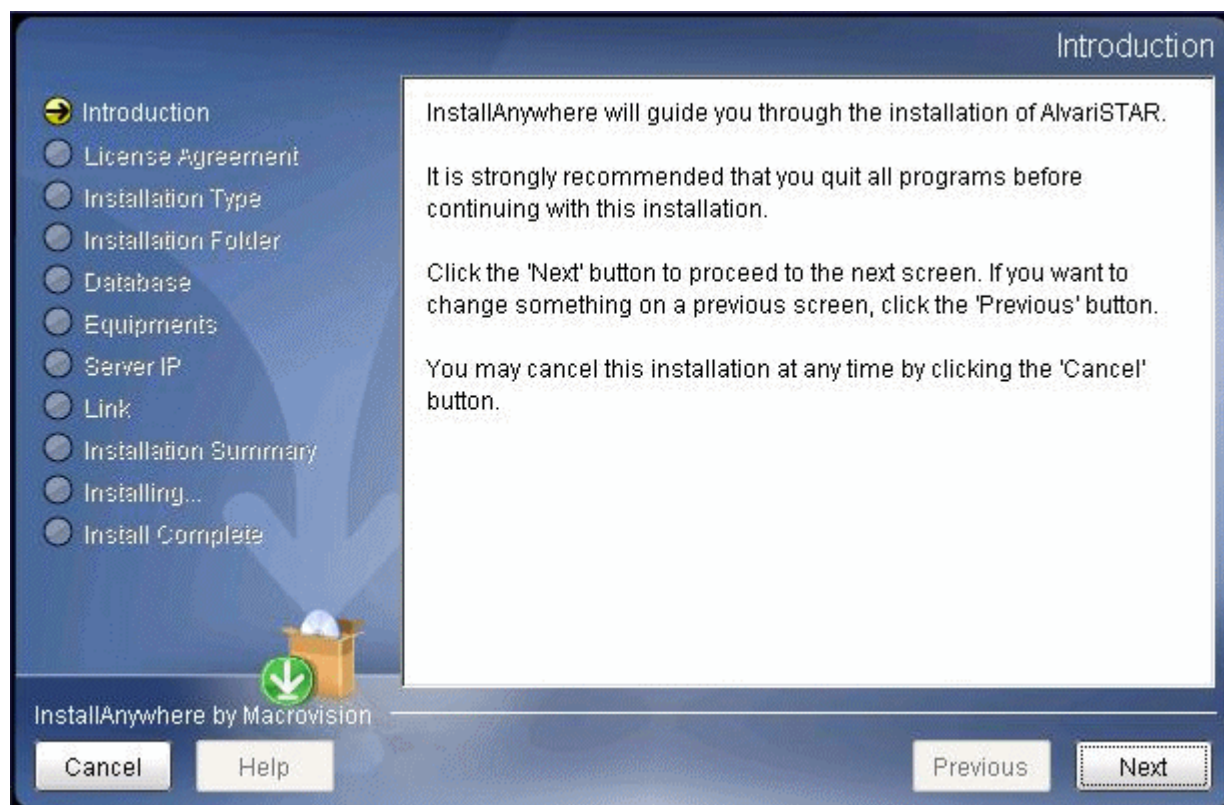


Figure 3-18: Introduction Window

- 4 Review the information and click **Next**.

The security settings are exported.

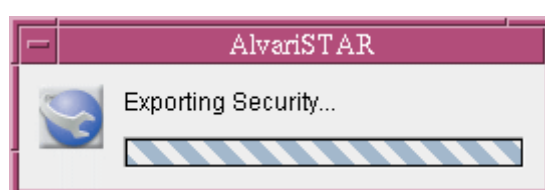


Figure 3-19: Exporting Security Settings

The installation wizard searches for existing AlvariSTAR installations. The following warning is displayed.

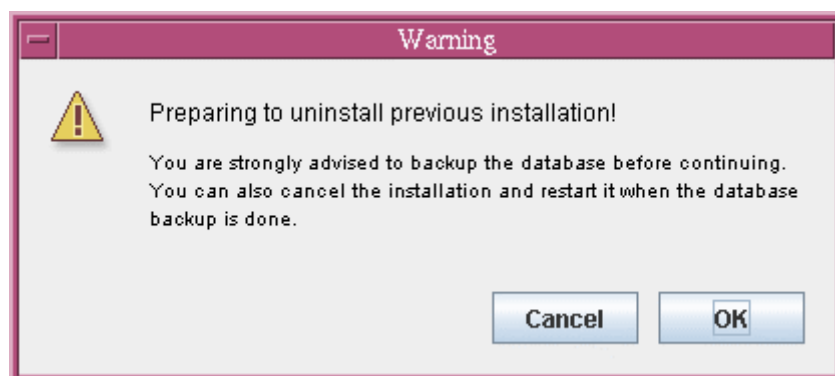


Figure 3-20:

- 5 Click **OK** to proceed with the upgrade. The existing version of the product is uninstalled.

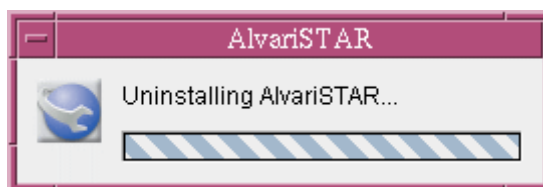


Figure 3-21: Uninstalling AlvariSTAR

After the previous version of AlvariSTAR has been uninstalled, installation of version 4.0 starts automatically.

The *License Agreement* window is displayed.

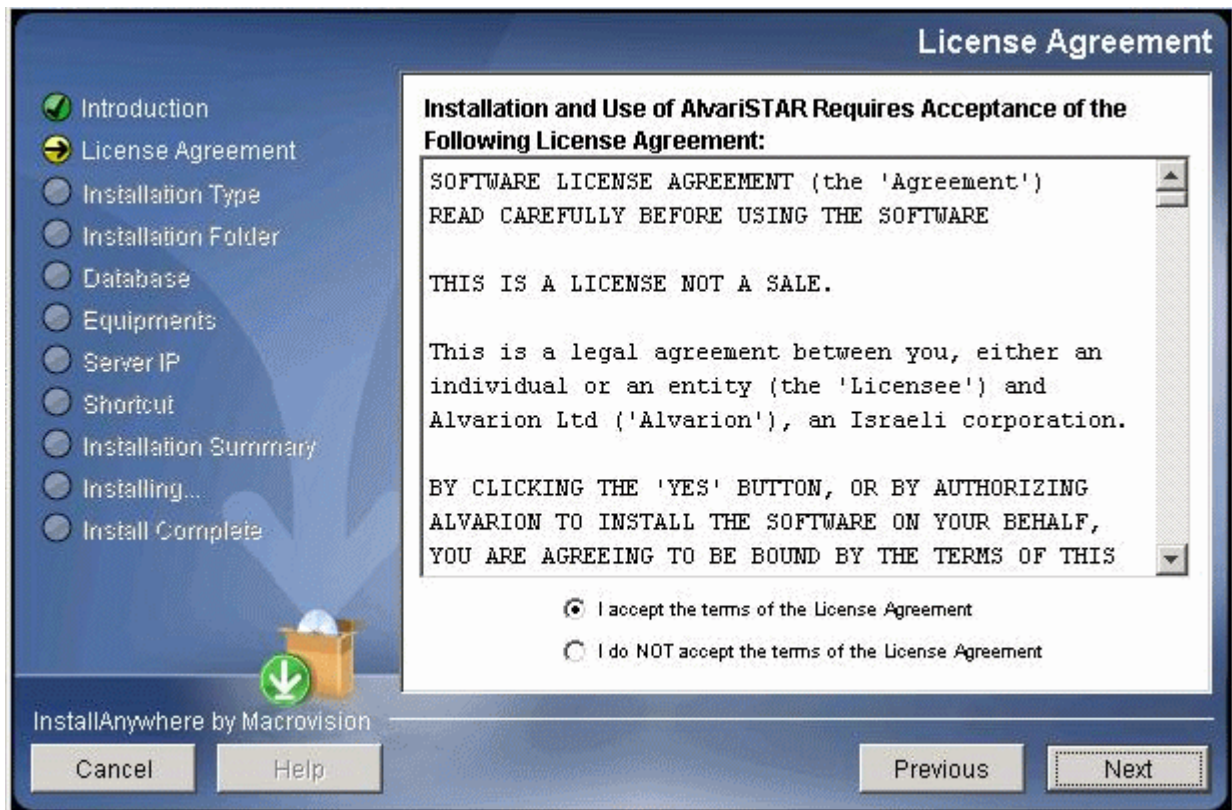


Figure 3-22: License Agreement Window

- 6 Accept the terms of the license agreement and click **Next**.

The *Choose Install Set* window is displayed.

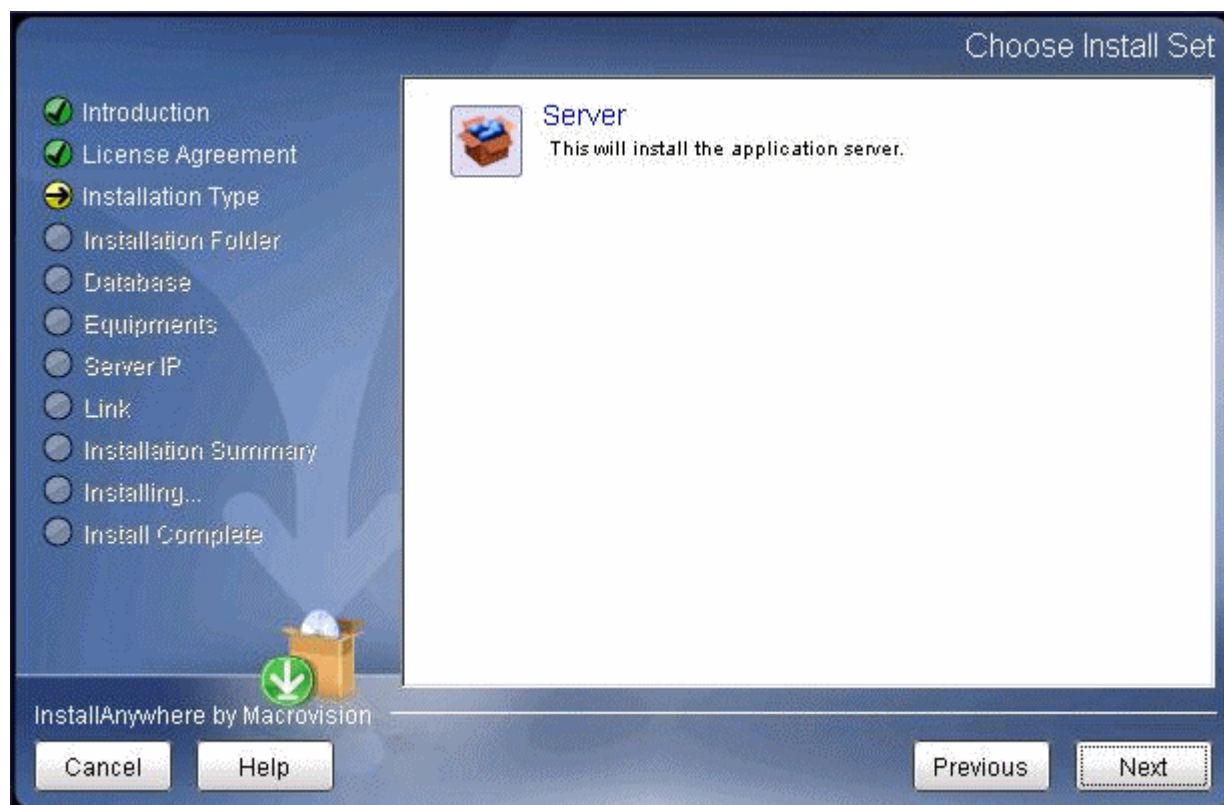


Figure 3-23: Choose Install Set Window

- 7 Choose **Server** and click **Next**. The *Device Driver Selector* window is displayed.

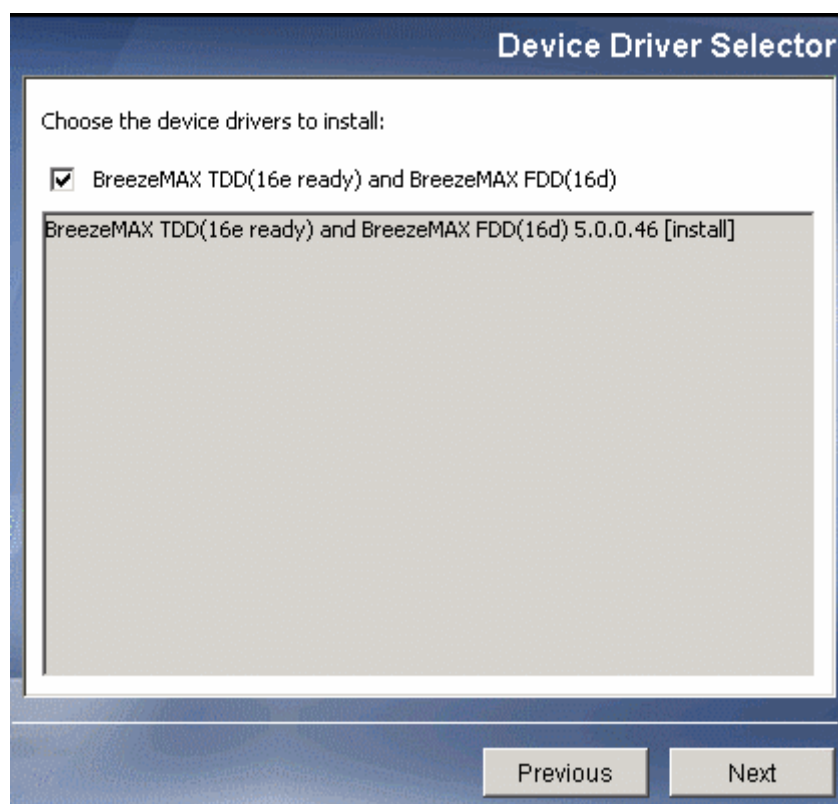


Figure 3-24: Device Driver Selector Window

- 8 Select any additional device driver(s) to install and click **Next**. The migrated device is selected automatically.

The *Installation Summary* window is displayed.

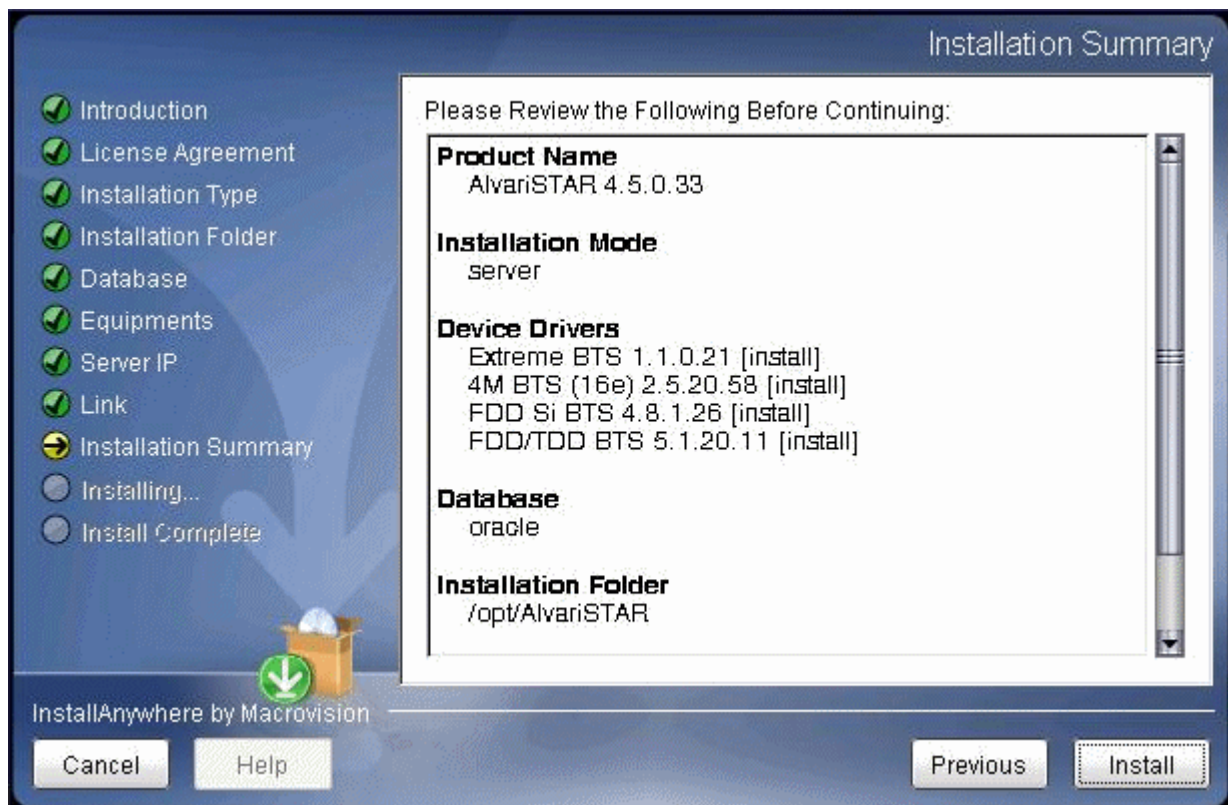


Figure 3-25: Installation Summary Window

- 9 Review the information and if the definitions are all correct, click **Install**. Click **Previous** to go back to change a definition.

The *Installing AlvariSTAR* window is displayed.

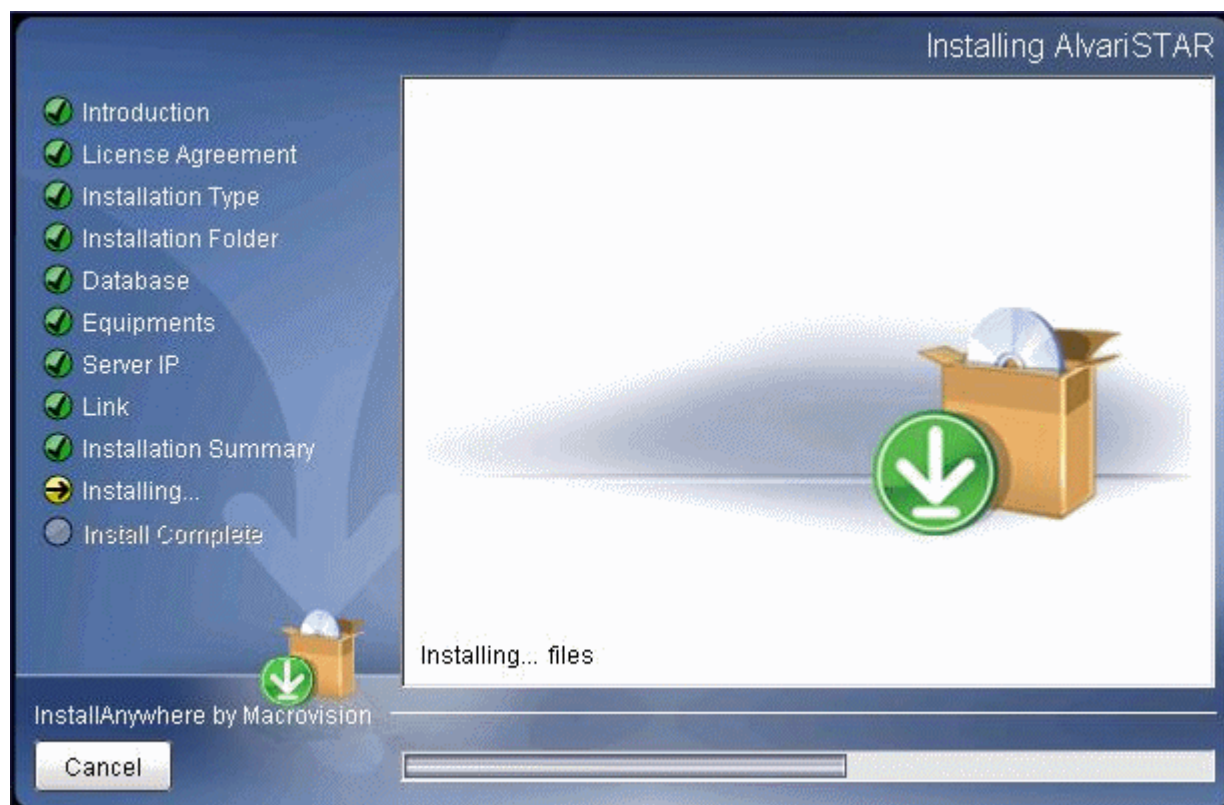


Figure 3-26: Installing AlvariSTAR Window

- 10 The installation process takes several minutes. The database parameters are

Figure 3-27:

automatically imported from the previous installation and the *Install Complete* window is displayed.

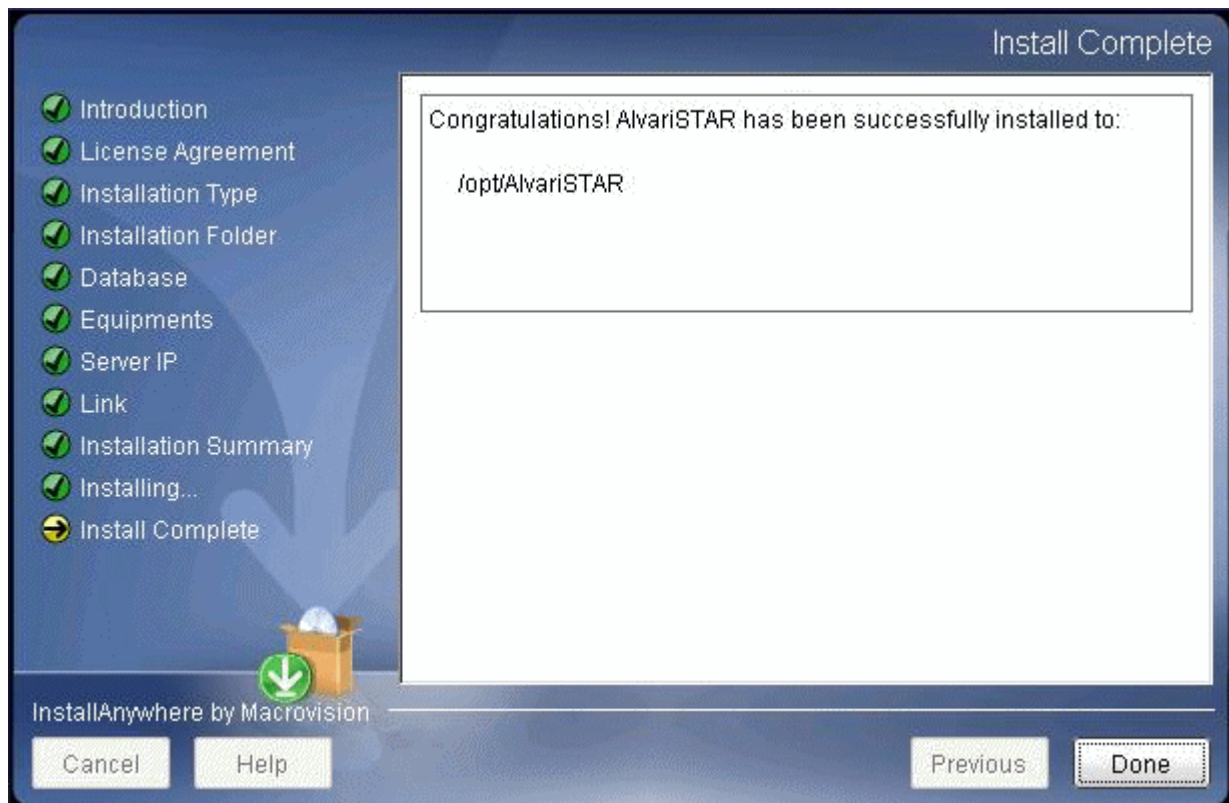


Figure 3-28: Install Complete Window

- 11** Click **Done** to quit the installer.



IMPORTANT

After the upgrade is completed, it is necessary to start the AlvariSTAR server manually (see [Section 3.3](#)).



IMPORTANT

After upgrading, the new license must be installed and activated. See the *AlvariSTAR User Manual*.

3.4.2 Upgrading the Device Driver

It is possible to upgrade the device driver or install a driver for a new device at any time.

- 1 Log in as root.
- 2 To begin the installation:
 - » Run the **setup.sh** file directly from the AlvariSTAR CD
 - » For FTP installations, copy the entire installation kit to your hard-drive and run **setup.sh**. You might have to set executable permissions on the **setup.sh** file and **install.bin** file. To do this use the following commands in the folder where the installation files reside:

```
chmod a+x setup.sh
```
 - » The **setup.sh** file can be found at Disk1.



CAUTION

When copying or downloading the installation kit to a local disk, make sure you copy the entire content of the kit - not only the **setup.sh** file.



NOTE

The following installation procedure assumes that you are installing the BreezeMAX Device Driver. The installation steps are the same for all device drivers, but the name of the device in the installation screens varies according to the device.

InstallAnywhere is activated.

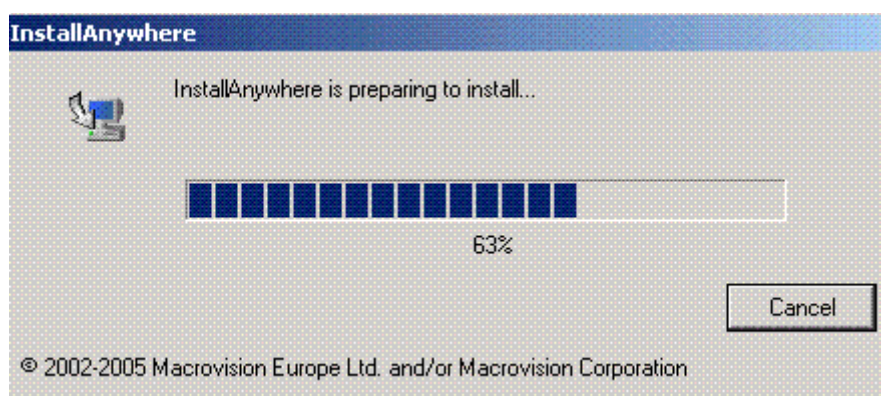


Figure 3-29: InstallAnywhere Initialization

- 3 Wait until InstallAnywhere has completed the initialization. An *Introduction* window is displayed.

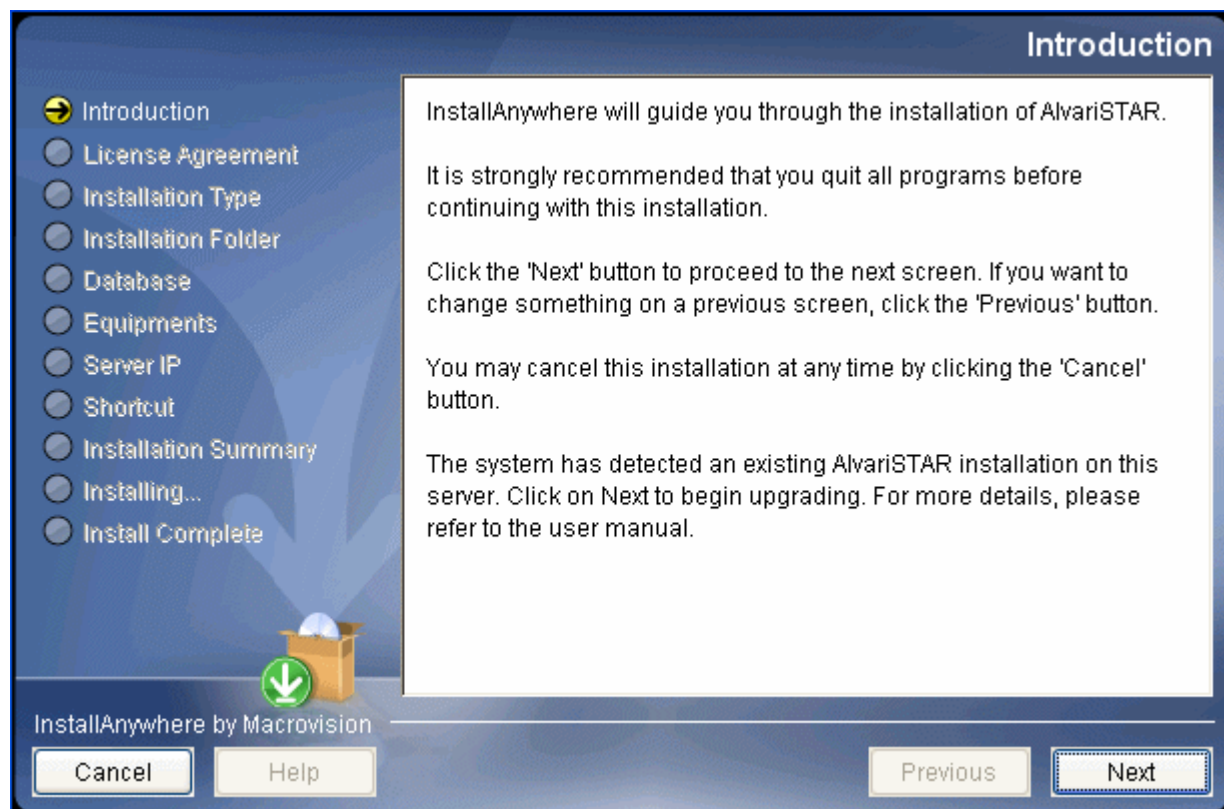


Figure 3-30: Introduction Window

- 4 Review the information and click **Next**. The *License Agreement* window is displayed.

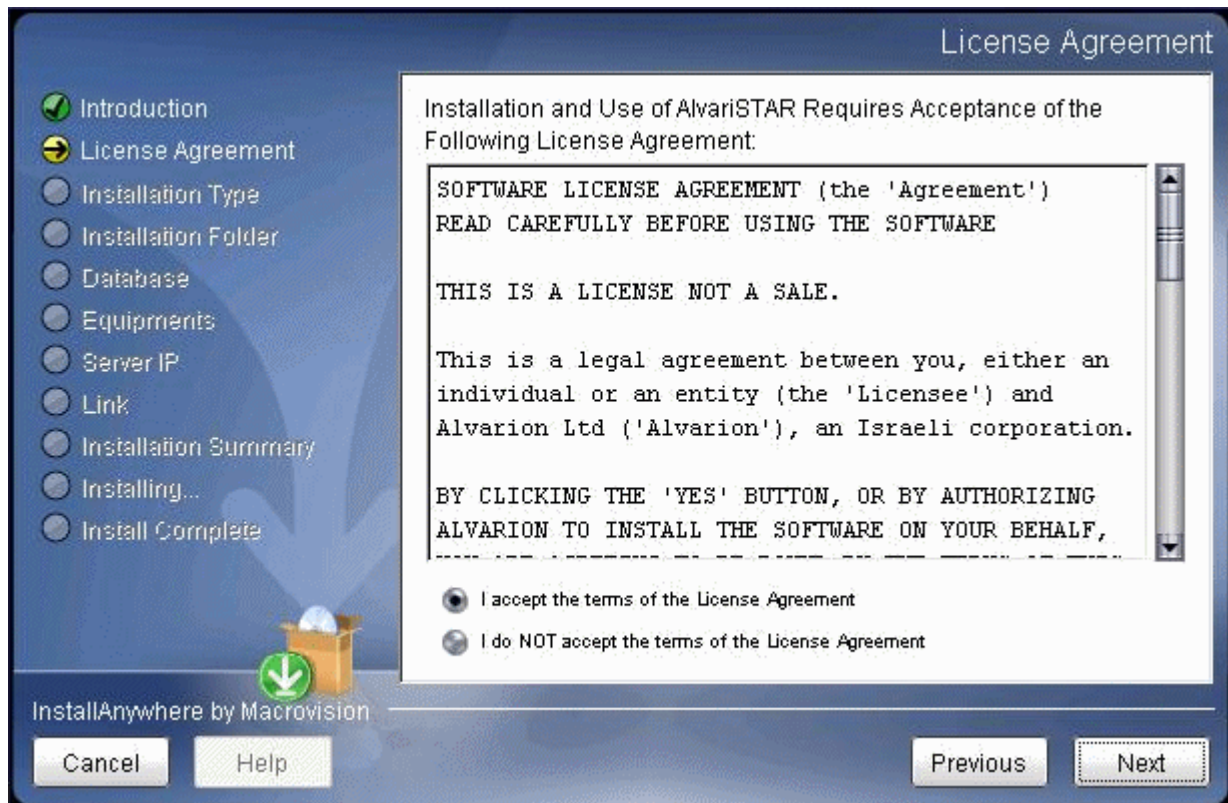


Figure 3-31: License Agreement Window

- 5 Accept the terms of the license agreement and click **Next**.

The *Choose Install Set* window is displayed.

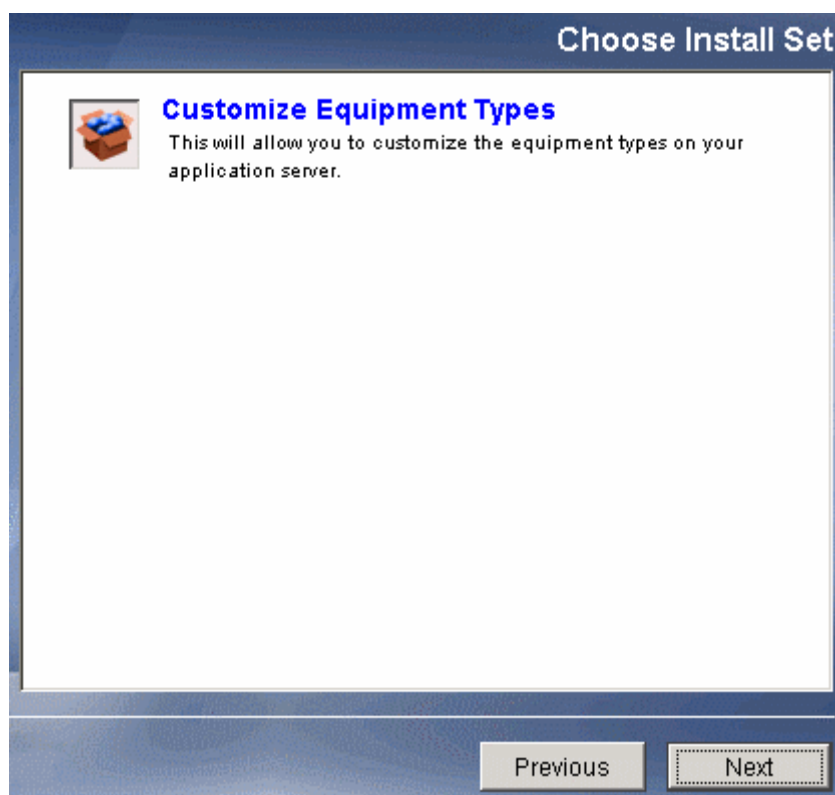


Figure 3-32: Choose Install Set

- 6 Choose **Customize Device Drivers** and click **Next**. The *Device Driver Selector* window is displayed.

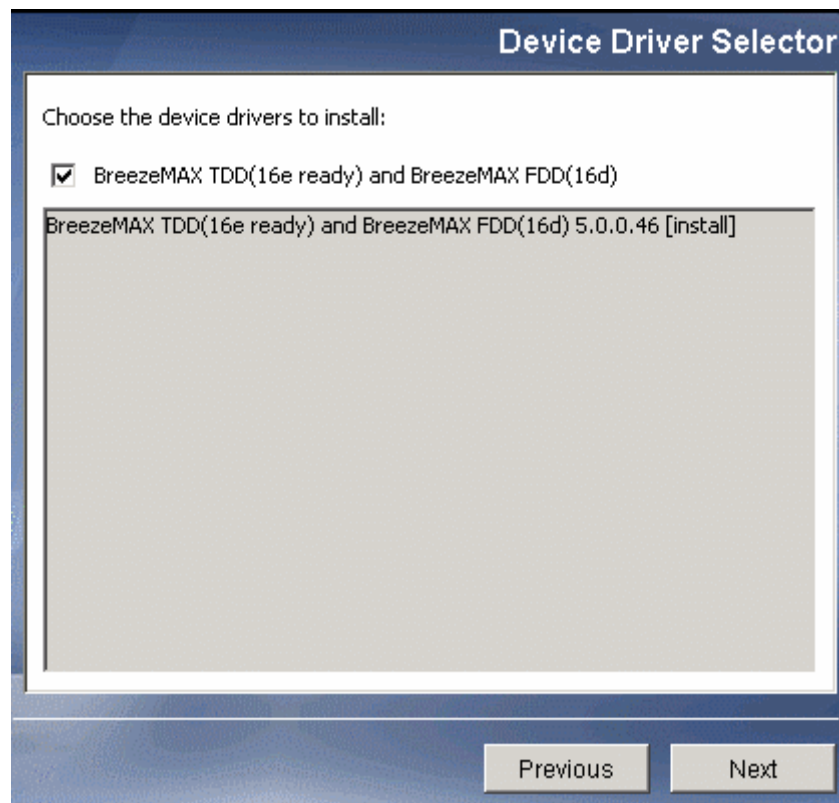


Figure 3-33: Device Driver Selector Window

- 7 Select the device driver(s) to install and click **Next** to install the device driver(s).



NOTE

If no modifications are made to the current installation, a message is displayed.

The *Customization Summary* window is displayed.

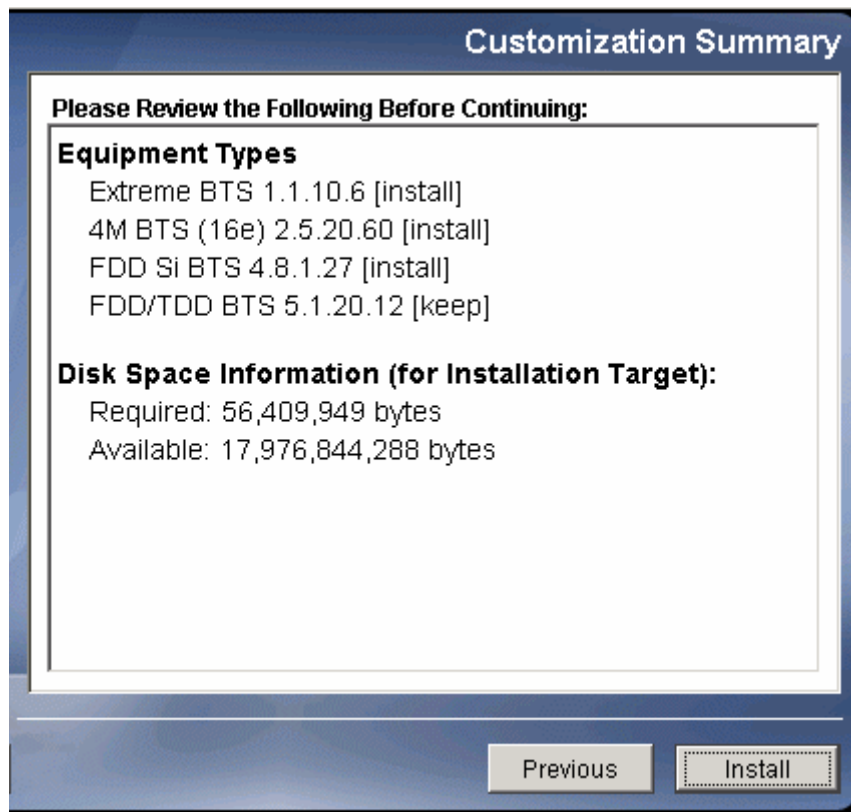


Figure 3-34: Customization Summary Window

- 8 Review the configuration. Click **Previous** if you want to return to a previous step and change your settings. Click **Install** when you are ready to proceed.

The *Installing AlvariSTAR* window is displayed.

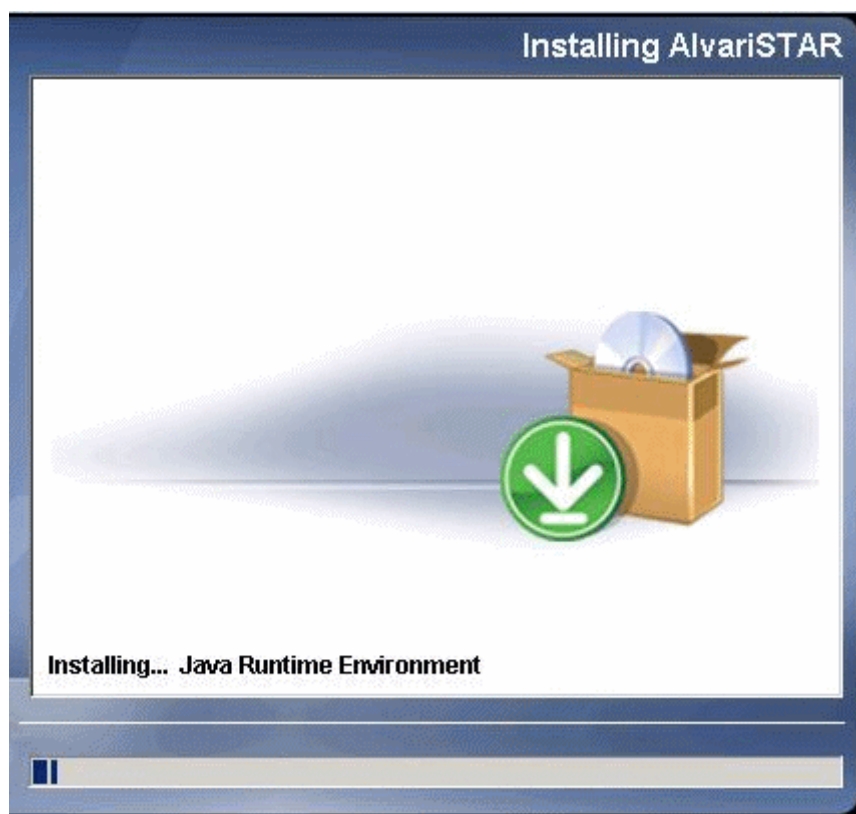


Figure 3-35: Installing AlvariSTAR Window

- 9 The installation process takes several minutes.

Once AlvariSTAR has been successfully installed the *Install Complete* window is displayed.

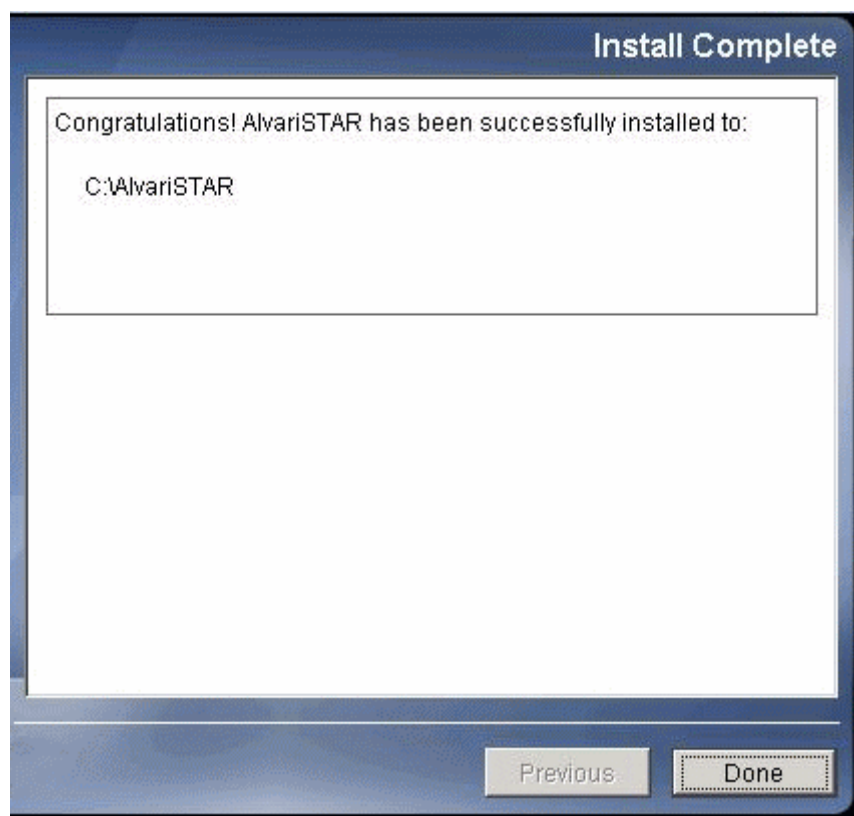
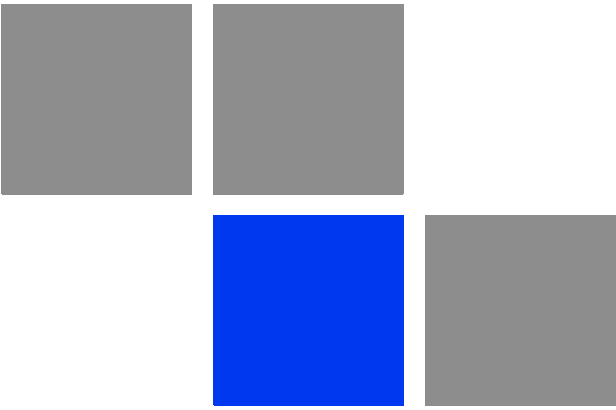


Figure 3-36: Install Complete Window



Chapter

4

Client Installation

In This Chapter:

This chapter describes how to install the AlvariSTAR Client application on additional machines.

- [“Pre-installation Check list” on page 126](#)
- [“Installing AlvariSTAR” on page 127](#)
- [“Upgrading Client Installation” on page 140](#)



NOTE

The Client application can only be installed on Windows operating systems. The software version must be the same as that of the server.



NOTE

You don't need to have the the client application installed on your machine in order to access the AlvariSTAR server remotely. If you have Java Runtime Environment 1.6 or higher installed on your system, you can use the Java Web Start functionality to run AlvariSTAR. For more information, see the Web Start related section in the AlvariSTAR User Manual.

4.1 Pre-installation Check list

The computer on which the client is installed must meet minimal hardware and software requirements. For further information refer to the Release Notes.

Before starting the installation:

- Make sure that AlvariSTAR Client is not already installed on the computer. If there is a previous installation, uninstall ([Section 6.1](#)) before proceeding.
- Contact the system administrator and verify the following information:
 - » **Folder location:** Client installation requires 0.5 GB disk space. Verify in which folder the software will be installed.
 - » **Server IP:** Verify the server IP address.

4.2 Installing AlvariSTAR



To install an AlvariSTAR client:

- 1 Log in to the computer on which the installation is to be performed as a user with administrator privileges.
- 2 Open an internet browser and type the following url: `http://<AlvariSTAR server IP>:8080/bwanms/client/install.htm` where < AlvariSTAR server IP> is the IP address of the computer on which the AlvariSTAR is installed (e.g., `http://172.30.105.213:8080/bwanms/client/install.htm`).

The *InstallAnywhere Web Installer* opens.

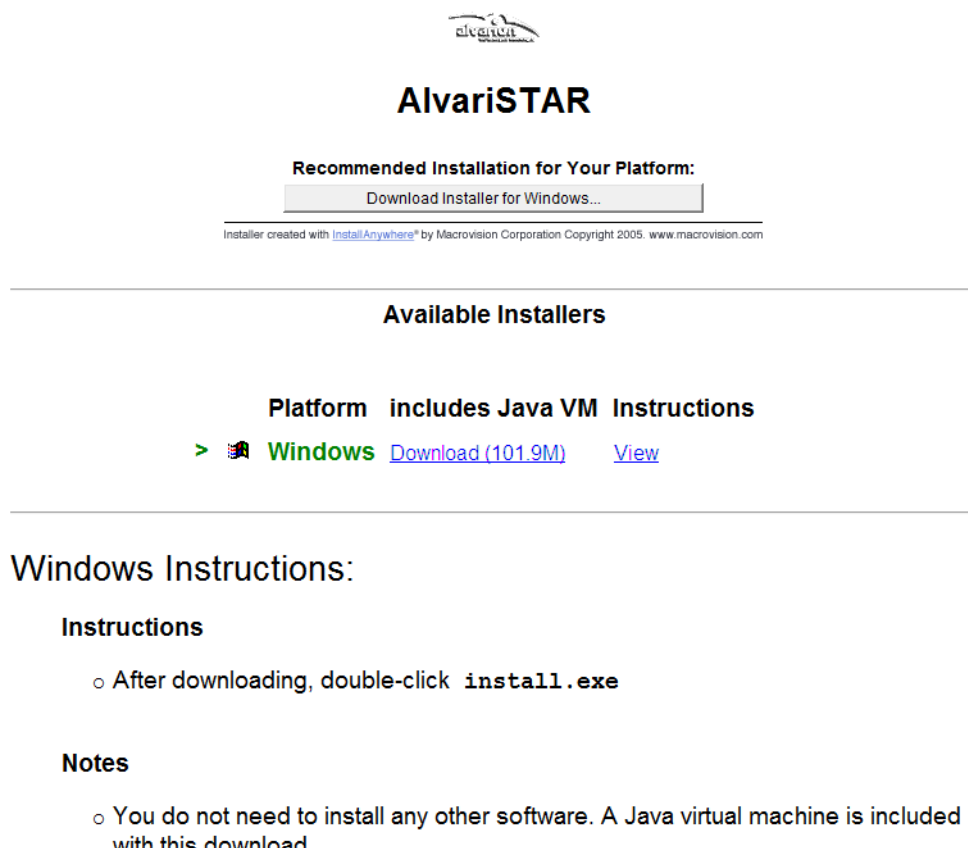


Figure 4-1: InstallAnywhere Web Installer

- Click on the **Download Installer for Windows** button or on the Download link. A file download security warning is displayed.

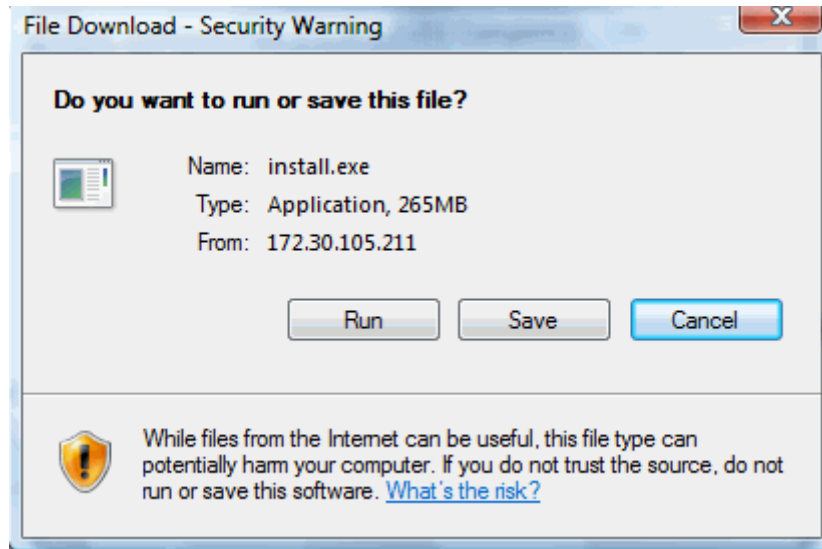


Figure 4-2: File Download - Security Warning

- Click **Run** to install the software or **Save** to save the installation program on the hard disk to install later.



NOTE

The install.exe file does not have a digital signature that verifies its publisher. If a warning is displayed asking whether you are sure that you want to run the software, click **Run** to proceed with the installation.

InstallAnywhere is activated.

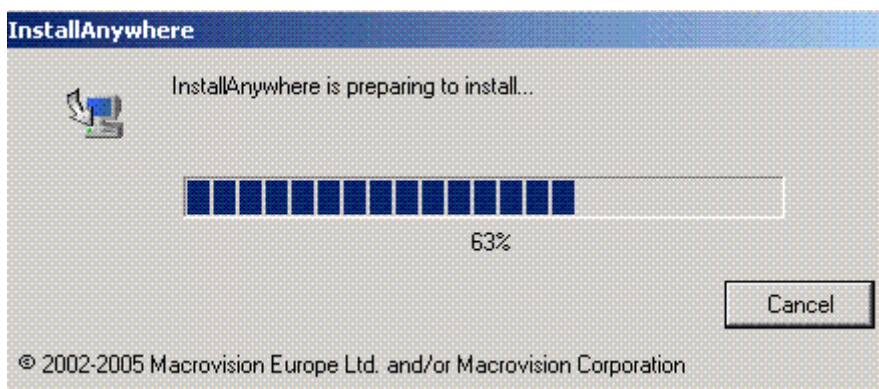


Figure 4-3: InstallAnywhere Initialization

- 5 Wait until InstallAnywhere has completed the initialization. An *Introduction* window is displayed.

**NOTE**

During installation, a console screen is displayed in the background, behind the installation windows. This screen does not require user intervention and should be ignored.

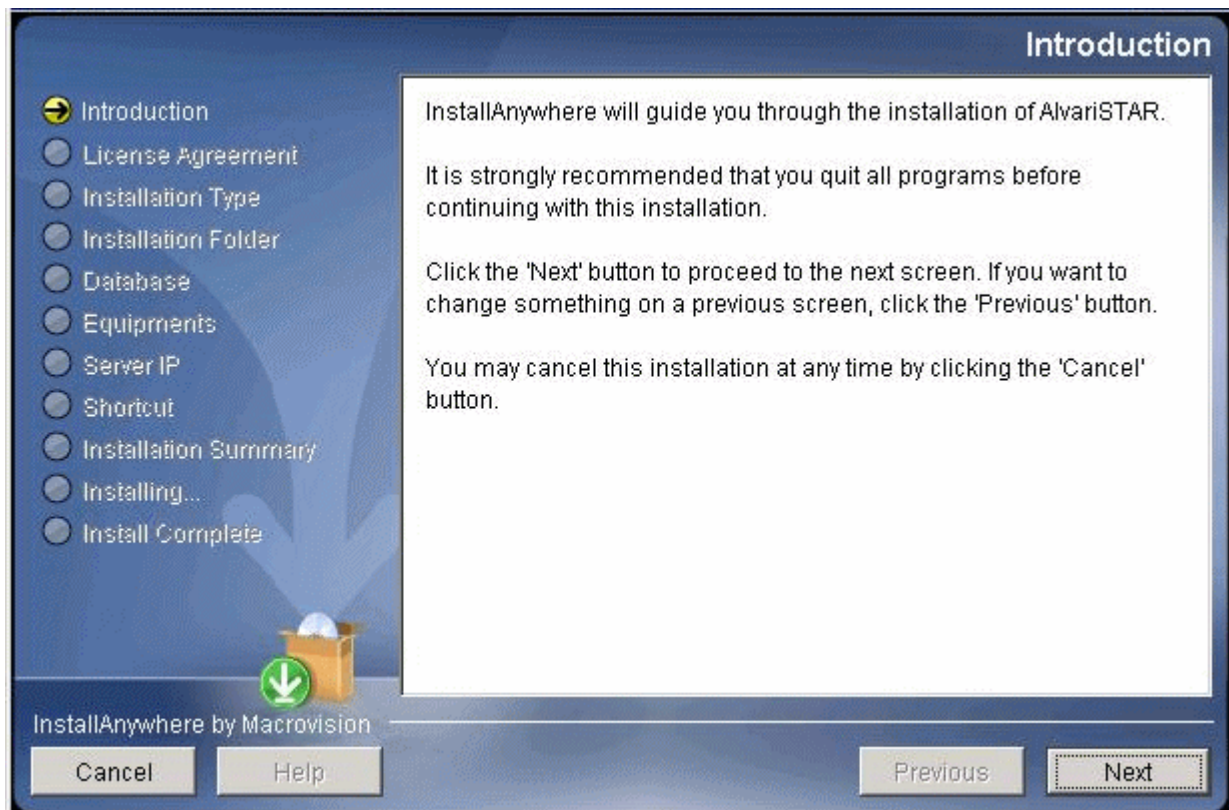


Figure 4-4: Introduction Window

- 6 Review the information and click **Next**.

The *License Agreement* window is displayed.

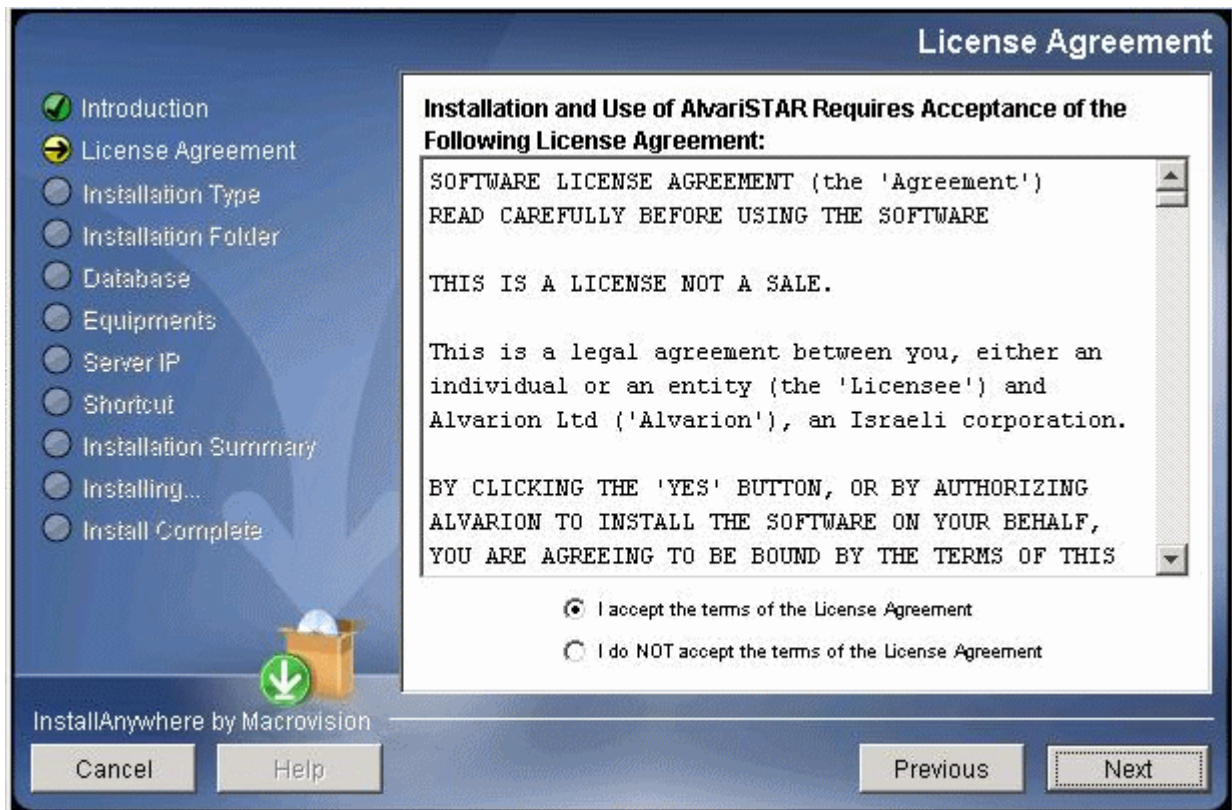


Figure 4-5: License Agreement Window

- 7 Accept the terms of the license agreement and click **Next**.

The *Choose Install Set* window is displayed.

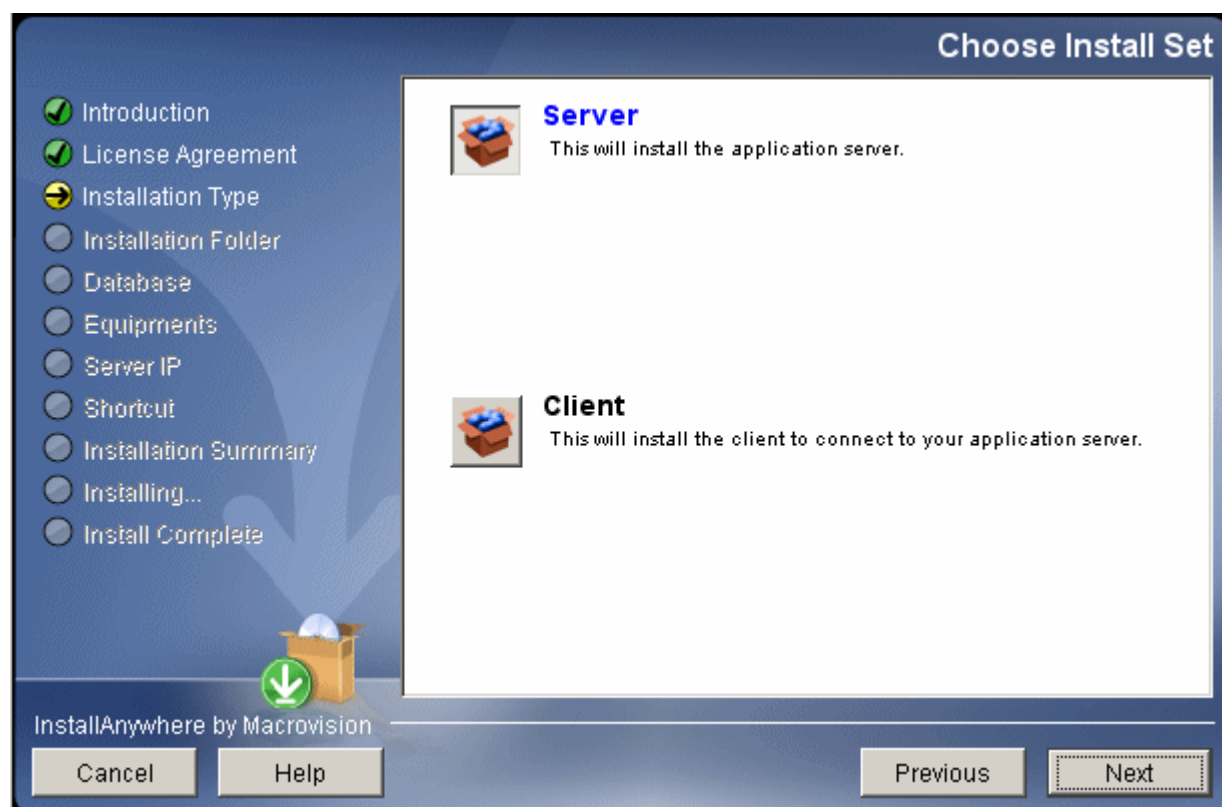


Figure 4-6: Choose Install Set Window

- 8** Choose **Client** and click **Next**.

The *Choose Install Folder* window is displayed.

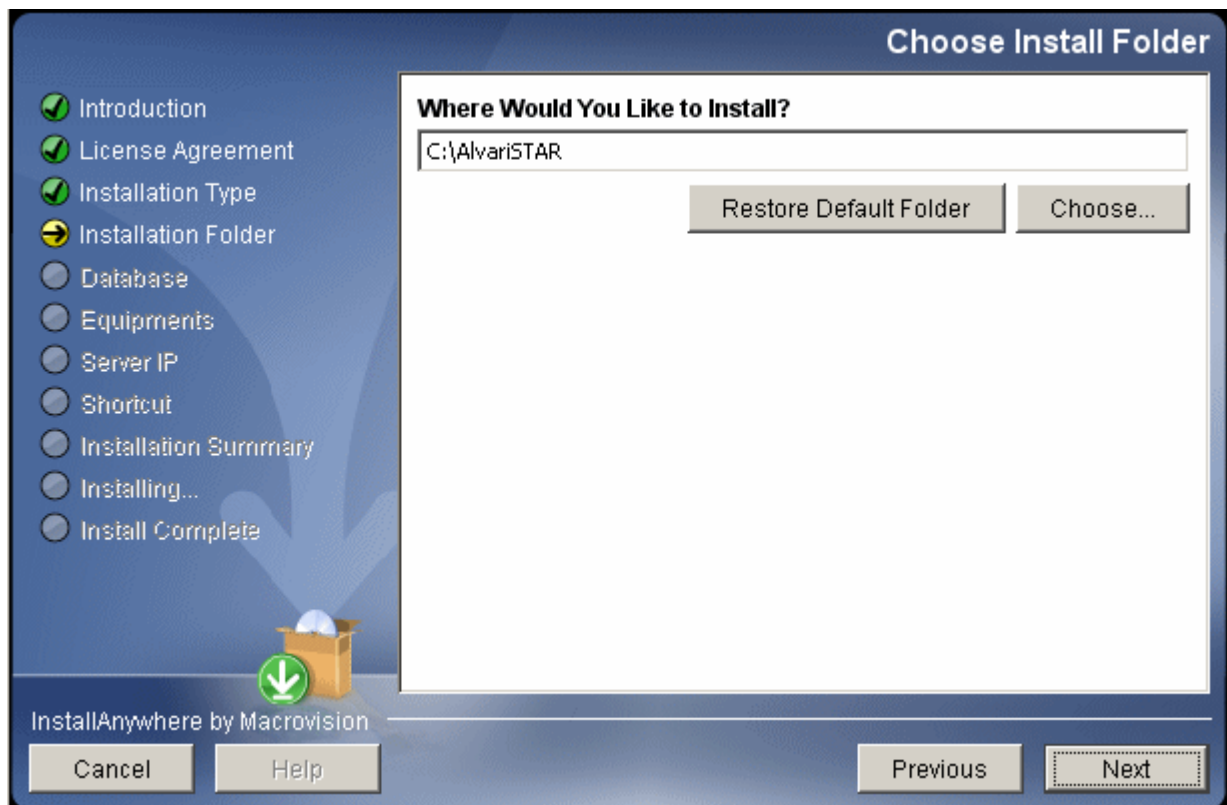


Figure 4-7: Choose Install Folder Window

- 9 To accept the default destination folder, click **Restore Default Folder**. To change the directory: either enter the complete path (if the directory does not exist, it will be created automatically by the system) or click **Choose** to locate an existing directory and click **Next**.



NOTE

If a folder with the same name already exists on the computer, a warning to save all information in the folder otherwise it will be deleted is displayed.

The *Server Configuration* window is displayed.

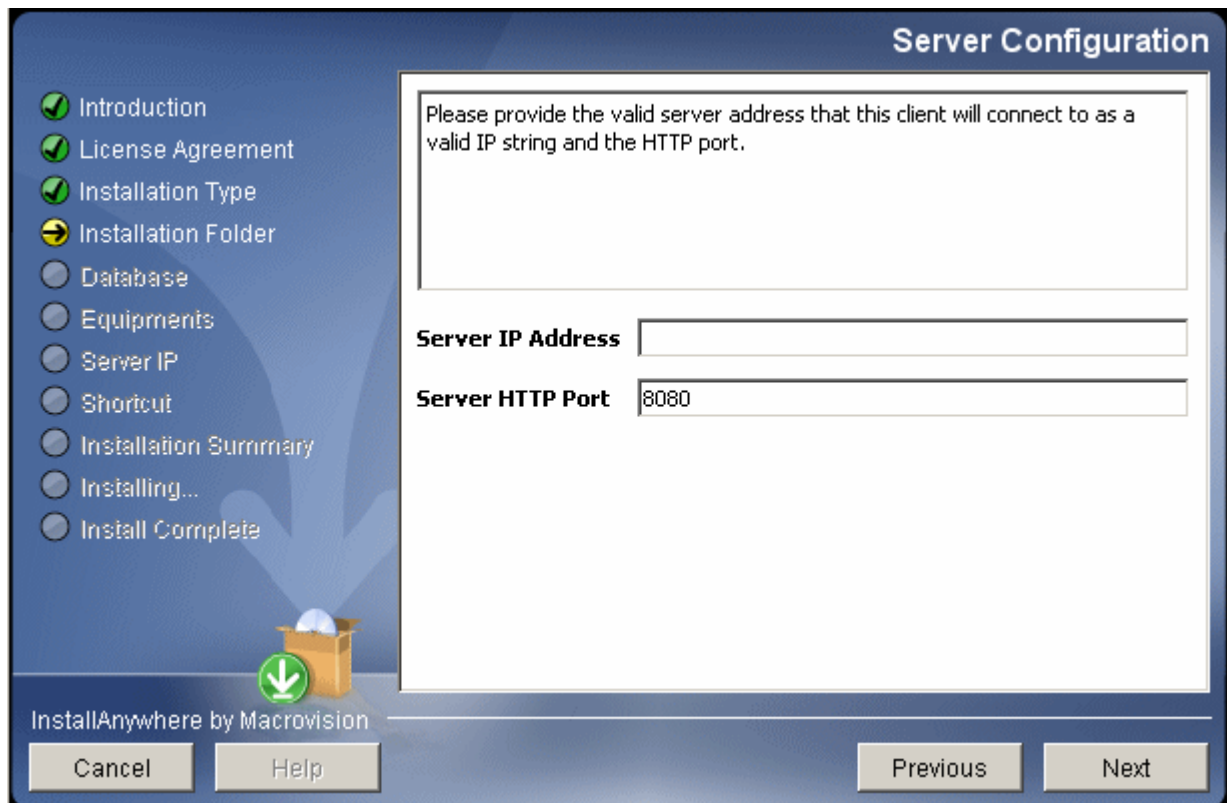


Figure 4-8: Server Configuration Window

- 10 Enter the IP address of the server that the client will connect to. The Server HTTP Port is 8080. Click **Next** to continue with the installation.



NOTE

The Client application can only be installed on a computer connected to an active server.

The *Choose Shortcut Folder* window is displayed.

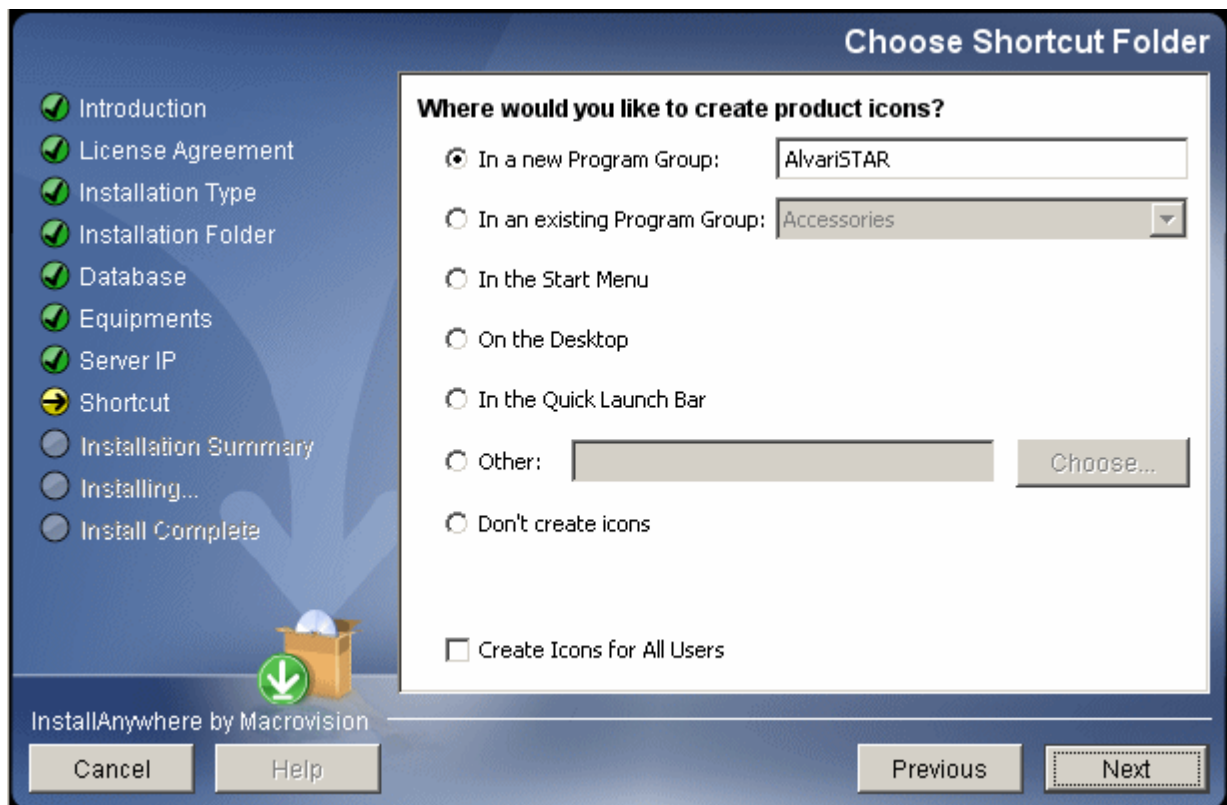


Figure 4-9: Choose Shortcut Folder Window

- 11** Select a location for the product icons and click **Next**.



NOTE

By default, the *In an existing Program Group* is selected and the *Create Icons for All Users* box is checked. To create icons for the current user only, select the *In a new Program Group* option and then uncheck the *Create Icons for All Users* box.

The *Installation Summary* window is displayed.

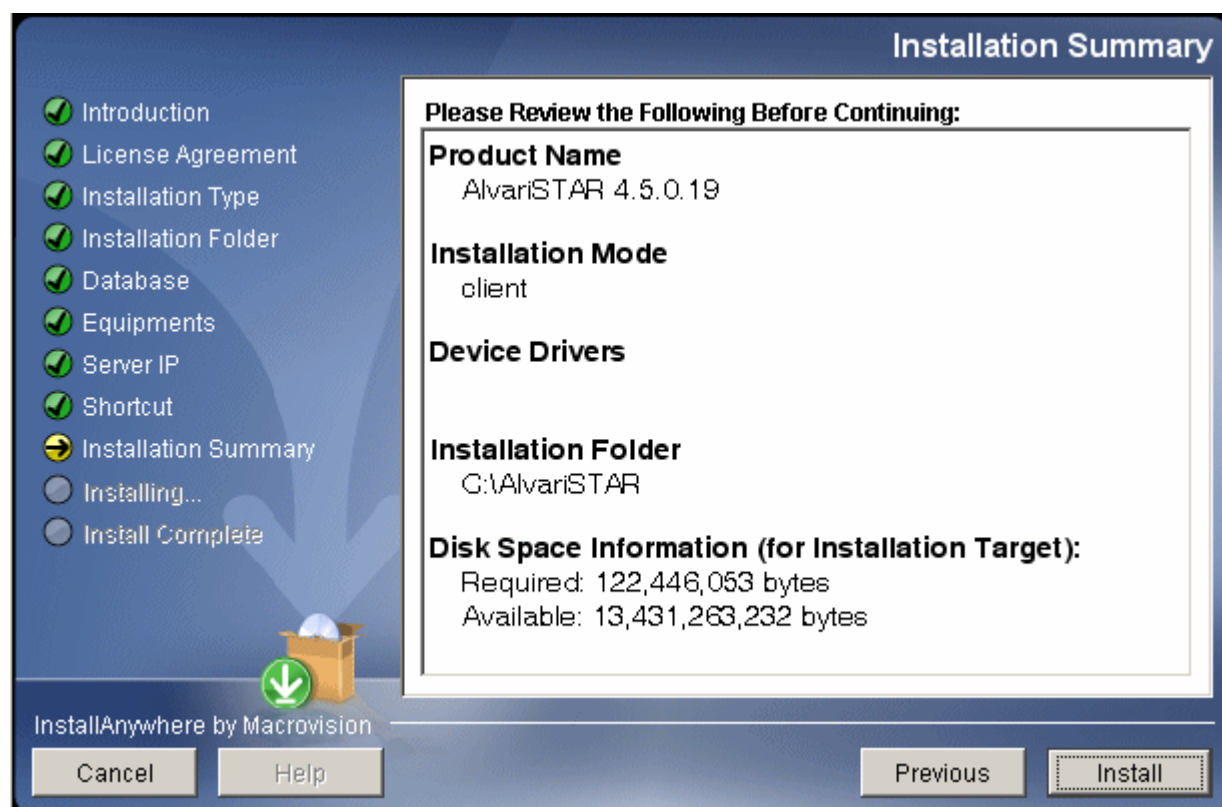


Figure 4-10: Installation Summary Window

- 12 Review the information and if the definitions are all correct, click **Install**. Click **Previous** to go back to change a definition.

The *Installing AlvariSTAR* window is displayed.

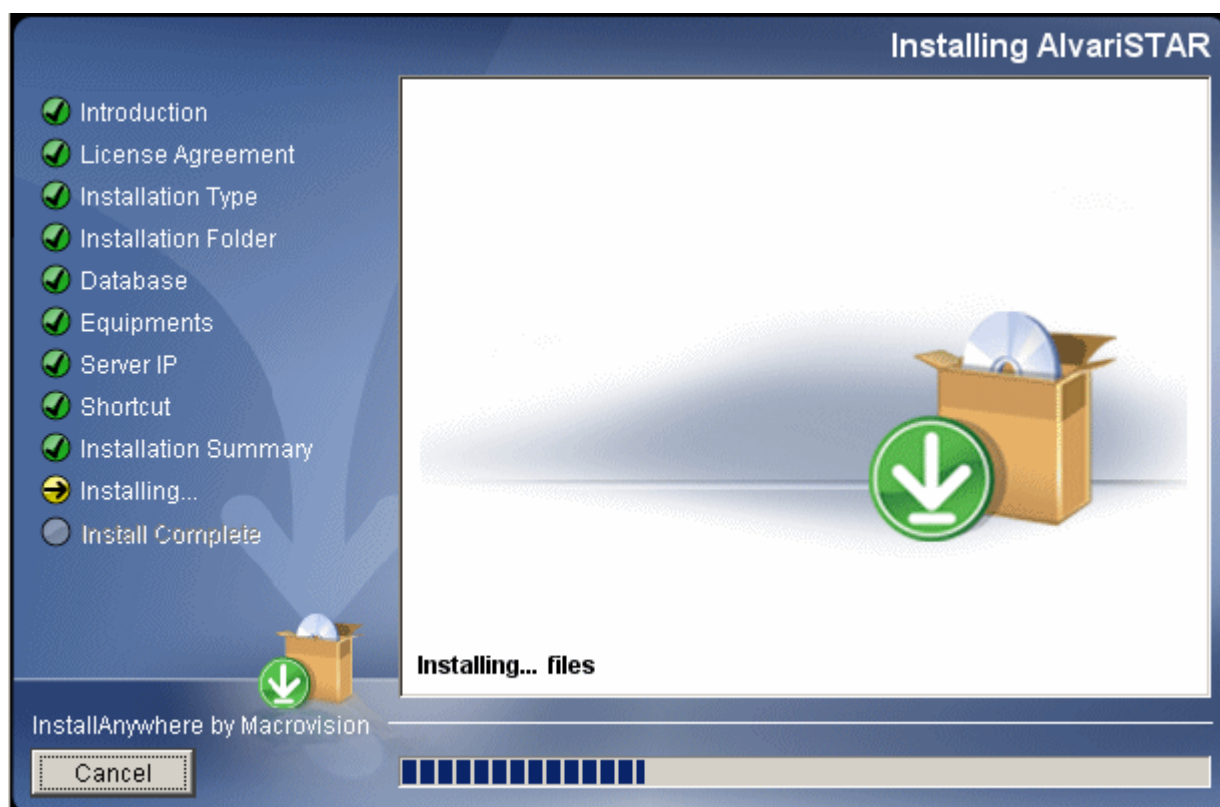


Figure 4-11: Installing AlvariSTAR Window

- 13** The installation process takes several minutes. Once AlvariSTAR has been successfully installed the *Install Complete* window is displayed.

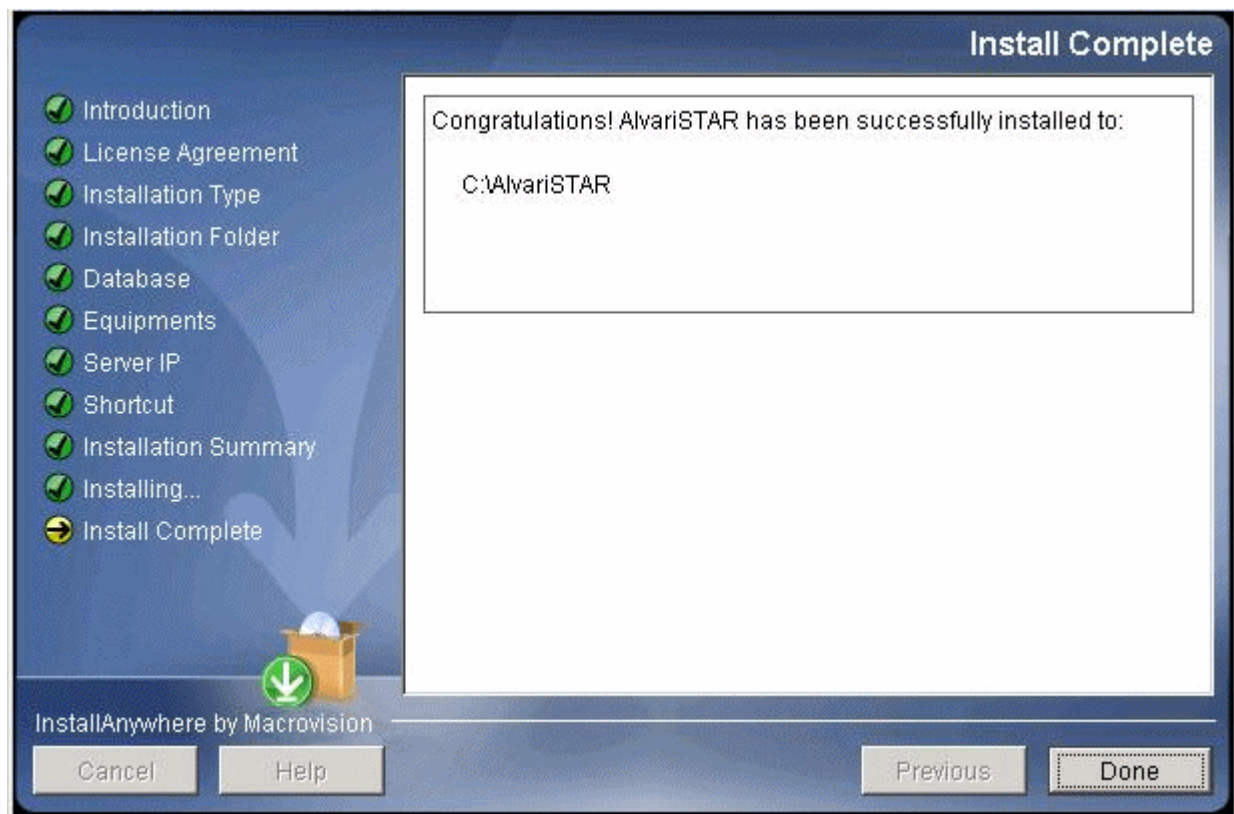


Figure 4-12: Install Complete Window

- 14 Click **Done** to quit the installer and complete the installation.



NOTE

After the client has been successfully installed, there is an inconsistency between the server and client installations. When running the client console for the first time, the application closes and the device driver is configured.

- 15 From the Windows Start menu, select *AlvariSTAR > Start Client Console*.
- 16 Enter a valid user name and password at the login prompt. (For more information refer to the *AlvariSTAR User Manual*).

The following error message appears.

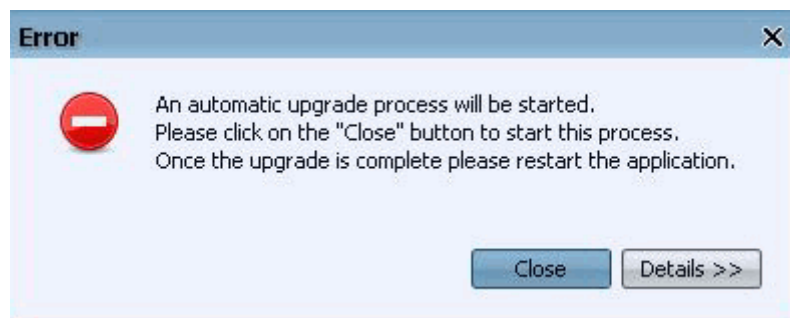


Figure 4-13: Automatic Upgrade Message

- 17 Click **Close** to start the process.

The *Update summary* window appears.

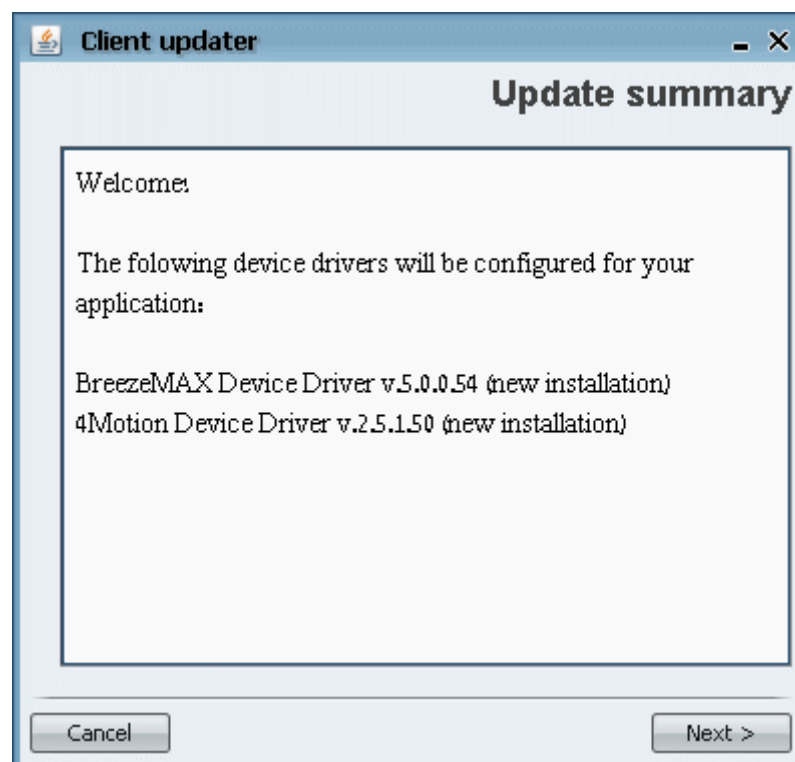


Figure 4-14: Update summary Window

- 18 The update process takes several minutes. Once the update has been successfully complete the *Update finished* window appears.

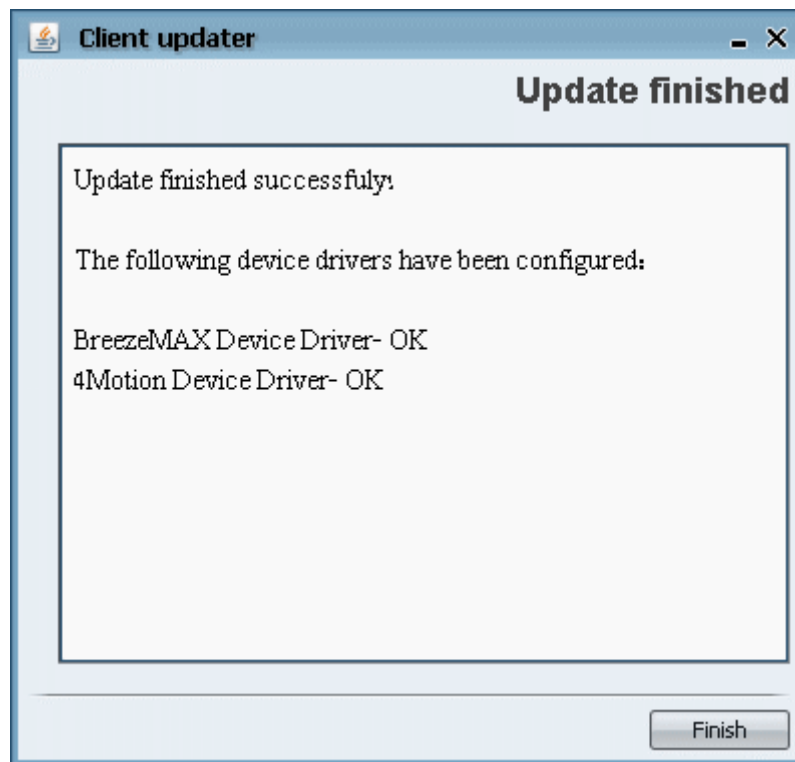


Figure 4-15: Update finished Window

- 19** Click **Finish** to exit the update procedure.



NOTE

The regional Launcher application is automatically installed as part of the Client installation. This application enables the client to connect to a server, other than that defined during installation. For more information, refer to the *AlvariSTAR User Manual*.



NOTE

The Client application always checks for inconsistencies with the device driver installed on the server and if detected automatically starts updating. Updating the device driver will install, upgrade or remove device drivers to be consistent with the server.

4.3 Upgrading Client Installation

Client upgrade is not currently supported.



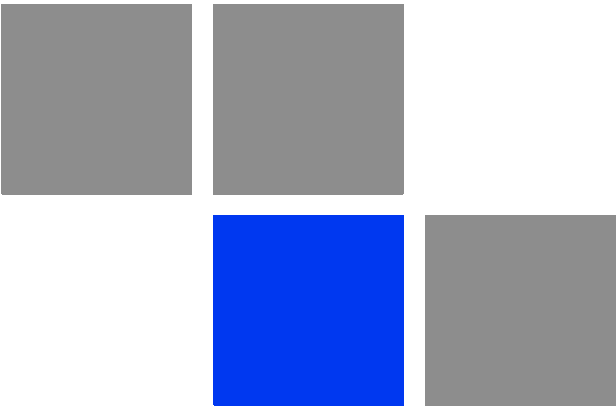
To upgrade a client installation:

- 1 Manually uninstall the current client installation ([Section 6.1](#))
- 2 Upgrade the server installation ([Section 2.4](#)).
- 3 Install the client again from the upgraded server installation ([Section 4.2](#)).

NOTE



- If there is a new device driver on the server, the client will be updated automatically.
- If there is a patch installed on the server, the client will be updated automatically.



Chapter

5

System Maintenance

In This Chapter:

This chapter describes how to maintain and tune the system to ensure that the AlvariSTAR application server runs smoothly.

- [“Memory Tuning” on page 143](#)
- [“Database Management” on page 144](#)
- [“File System Maintenance” on page 148](#)
- [“Telnet Cut-Through” on page 149](#)
- [“Changing Application Server IP Address” on page 151](#)

5.1 Memory Tuning

As with any server system, proper memory tuning is crucial for the overall AlvariSTAR system performance. This section allows you to configure in detail the memory allocation for the AlvariSTAR application server.

To modify memory allocation settings on the application server edit the script file `/bin/startappserver` and locate the line that starts with:

```
JAVA_OPTS="$SERVER_FLAG -Xconcurrentio -XX:MaxPermSize=128m -
```


5.2 Database Management

AlvariSTAR is heavily dependent on the database for the most basic operations. A database crash will cause the system to stop functioning and may cause loss of data.

Although most of the operational data is kept in the Base Station equipment's internal database, the following data is kept only in the AlvariSTAR database:

- IP list for the discovered network + SNMP details
- Location schema and the correlated maps files
- Contact information
- PM collection tasks and data
- Configuration backup files
- NMS license keys
- Trap settings (NMS severity, filters, views, northbound etc.)
- Traps history.

5.2.1 Oracle Database Backup

For Oracle fault tolerance, back up your Oracle database. To do this, we recommend using Oracle's Recovery Manager (RMAN) backup utility. This is an Oracle tool that lets you back up, copy, restore, and recover data files, control files, and archived redo logs. It is included with Oracle server and does not require a separate installation.

5.2.2 MySQL Backup/Restore

The Backup/Restore procedures described are based on the standard tools provided by MySQL distribution.

The basic backup procedure is `mysqldump.exe`. The backup files created should be saved on separate media/storage for increased preservation. For further details go to <http://dev.mysql.com/doc/refman/5.1/en/mysqldump.html>.

There are two main backup methods:

- Full backup - backups all the data every time the process is executed.
- Incremental backup - backups all the data once, and then backups only the changes made in the DB since the last full backup

This section deals with the full backup. For more information on the increment backup see: <http://dev.mysql.com/doc/refman/5.1/en/mysqlbinlog.html>.

5.2.2.1 Examples

Example 1: The following is an example of a DOS batch file that can be used to back up the database and thus provide the means to successfully restore:

```
::@ECHO OFF
:: Initializing
:: MySQL user & password
SET sMySQLAccess=-uroot -ppassword
:: databases to back up
SET sDatabases=--databases hwanms owbusdb
:: full path for MySQL executables
SET sMySQLBinPath=C:"Program Files"\MySQL\MySQL Server 5.1\bin\
:: directory for backup files
SET sBackupFileDir=C:\
:: generate an exact timestamp to be used a unique qualifier for the backup file name
SET sMySQLCMD=%sMySQLBinPath%mysql %sMySQLAccess% -N -s -D mysql -e
SET sSQL=select date_format(now(),'%Y%m%d_%H%i%s');
%sMySQLCMD%"%sSQL%">NUL
IF NOT %ERRORLEVEL%==0 EXIT /B %ERRORLEVEL%
FOR /F "tokens=1* delims= " %i in ('%sMySQLCMD%"%sSQL%') do set sTS=%i
echo Started Backup Process ....>%BackupFileDir%BkpLog_%sTS%
:: executing the backup command line
SET sBackupCMD=%sMySQLBinPath%mysqldump.exe %sMySQLAccess% %sDatabases% --verbose --quick
--add-drop-database --create-options --flush-logs
--single-transaction --result-file=
%sBackupCMD%sBackupFileDir%BkpFile_%sTS% 1>>%sBackupFileDir%BkpLog_%sTS% 2>>&1
IF NOT %ERRORLEVEL%==0 EXIT /B %ERRORLEVEL%
echo Terminated Backup Process ....>>%sBackupFileDir%BkpLog_%sTS%
```

The example includes the backup command line, executes a full backup using mysqldump, and delivers a backup file and a backup log. The backup file name and the log file name include a time stamp string and are unique, making it easier to maintain different backup files and logs. Both the backup and the log files are created in C:\.

**NOTE**

When using this batch file:

- Replace `-ppassword` with `-p<actual root password>`
- Update the `sMySQLBinPath` with the actual path on which MySQL was installed
- Verify that the value of the `SET sBackupCMD%` command includes all the `--options` in the same line

The user can add more functionality according to organizational backup standards, such as notification of backup process, automatic compression, automatic archiving of the backup files and automatic re-cycling of the files.

Example 2:

To recover a database use the `Mysql` command with the last full backup file. For example:

```
mysql -uroot -ppassword<C:\BkpFile_20060727_191835
```

restores the database that was backed up on 27/07/2006 19:18

5.2.3 Security Sub-System Backup/Restore

The AlvariSTAR security sub-system is based on LDAP and is independent of the database and thus must be backed up and restored independently.



To backup the security sub-system:

- 1 Verify that the system is up and running.
- 2 Run the following script file to export the data to a backup file:

Windows OS

```
<AlvariSTAR Root>/bin/ldap-export.bat
```

Solaris OS

```
<AlvariSTAR Root>/bin/ldap-export.sh <file name>
```



To restore the security sub-system:

- 1 Verify that the system is up and running.
- 2 Run the following script files to first import the backup file and then replace it:

Windows OS

```
<AlvariSTAR Root>/bin/ldap-import.bat continue_on_error  
<backup file name>
```

```
<AlvariSTAR Root>/bin/ldap-replace.bat continue_on_error  
<backup file name>
```

Solaris OS

```
<AlvariSTAR Root>/bin/ldap-import.sh continue_on_error  
<backup file name>
```

```
<AlvariSTAR Root>/bin/ldap-replace.sh continue_on_error  
<backup file name>
```

5.3 File System Maintenance

The AlvariSTAR system, during its normal activities, generates log files and DAP backup files. The AlvariSTAR file system should not exceed 90% space utilization. It is up to the NOC to monitor the AlvariSTAR file system and delete, compress, or back up these files.

Database Aging files: Database aging files are generated by AlvariSTAR and stored by default in the same parent directory as the application server. Even though the files are compressed (zipped), after several months of system operation they can consume a lot of space. When disk space is limited, these files should be moved to a different location.

The following are the default locations of the files:

- Event and audit logs:
 <AlvariSTAR Root>/filesystem/archive
- Performance files generated by the PM task:
 <AlvariSTAR Root>/filesystem/export
- Performance files generated by PMTM tasks:
 <AlvariSTAR Root>/filesystem/pmtm

5.4 Telnet Cut-Through

If a client does not have direct access to a device because the device is in a different network, it is possible to access the device using Telnet cut-through.



To access the device from the user interface:

- Run the following batch file that can be found in
\\AlvariSTAR_install_folder\bin\:

```
clientconsole-cutthrough.bat server_ip username password  
eq_ip
```

where:

server_ip is the IP address of the AlvariSTAR server

username is the server username

password is the server password

eq_ip is the IP address of device that you want to access



To access the device using a Telnet cut-through proxy:

- Install a SSH server on the AlvariSTAR server and configure the following parameters in the appserver.properties file. This file can be found in
C:\AlvariSTAR\jboss\server\nms\deploy\bwanssar\conf\appserver.properties.

Table 5-1: Telnet Cut-Through Proxy Parameters

Parameter	Value
com.bwanms.features.telnetcutthrough.serveripaddress	The IP address of the AlvariSTAR server
com.bwanms.features.telnetcutthrough.serveripport	The IP port of the server
com.bwanms.features.telnetcutthrough.serverusername	Server username
com.bwanms.features.telnetcutthrough.serverpassword	Server password
com.bwanms.features.telnetcutthrough.strategy	DirectlyToEquipment

**NOTE**

The AlvariSTAR server must be in the same network as the device.

5.5 Changing Application Server IP Address

When replanning a network, it sometimes necessary to change the IP address of the application server.

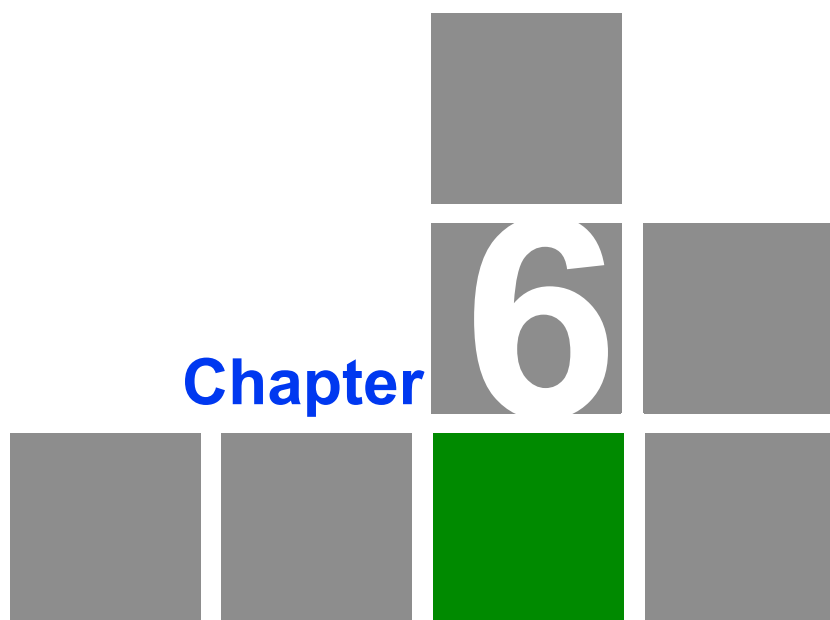
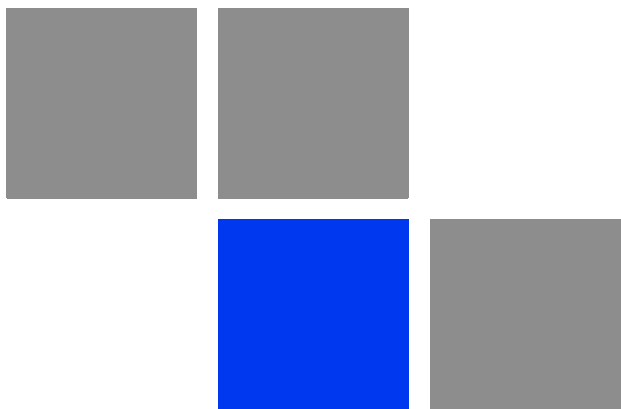


To change the application server IP address:

- 1 Stop the service (see [Section 2.3](#) and [Section 3.3](#)).
- 2 Open the script file <AlvariSTAR Root>/bin/env.bat and change the IP address in the line:

```
set NMS_SERVER_IP=
```

- 3 Save the changes and restart the application server.



Chapter

6

Uninstalling AlvariSTAR

In This Chapter:

If you want to change the AlvariSTAR installation, the current installation must first be removed according to the procedures described in this chapter, and the new configuration installed.

This version of AlvariSTAR does not support the addition or removal of specific components on an existing installation.

This chapter describes how to uninstall AlvariSTAR.

- [“Uninstalling AlvariSTAR” on page 154](#)
- [“Removing AlvariSTAR Data from Oracle” on page 162](#)

6.1 Uninstalling AlvariSTAR



NOTE

Uninstalling the AlvariSTAR server, also uninstalls all device drivers.

6.1.1 Windows OS



NOTE

Before uninstalling AlvariSTAR, it is recommended to backup the database and close the application.



To uninstall AlvariSTAR:

- 1 From the *Control Panel*, select the **Add/Remove Programs** utility, locate **AlvariSTAR** and click the **Remove** button.

OR

From the **Start Menu** select *Programs — AlvariSTAR — Uninstall*.

The *Uninstall AlvariSTAR* window is displayed



Figure 6-1: Uninstall AlvariSTAR Window

- 2 Click **Uninstall**. Messages relating to the uninstall procedure are continuously displayed in the *Uninstall AlvariSTAR* window.

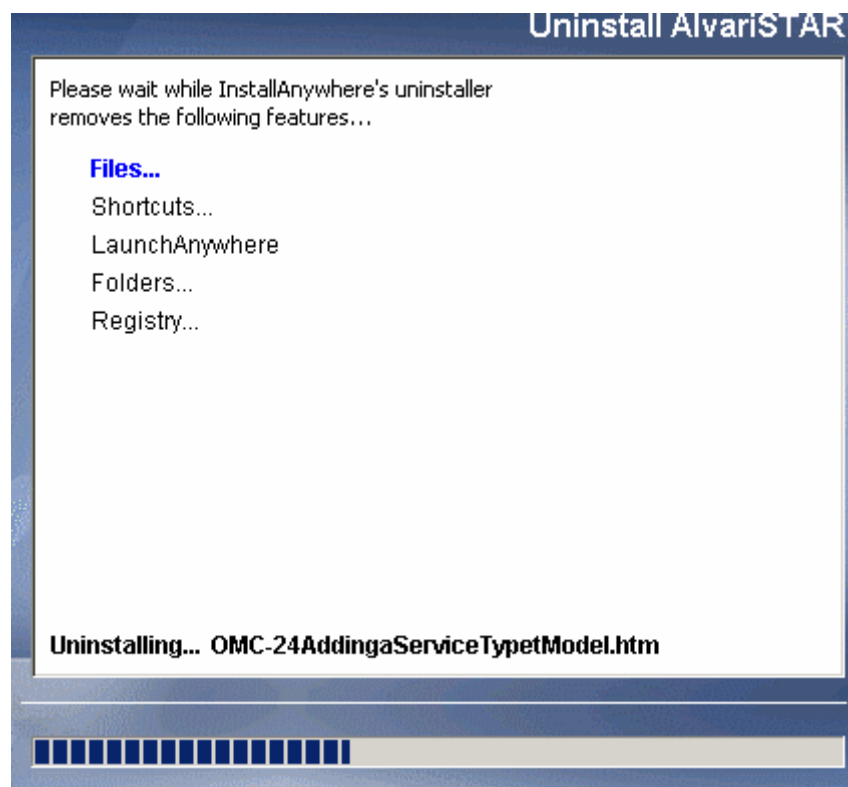


Figure 6-2: Uninstall AlvariSTAR Window

Once all items have been successfully uninstalled the *Uninstall Complete* window is displayed.

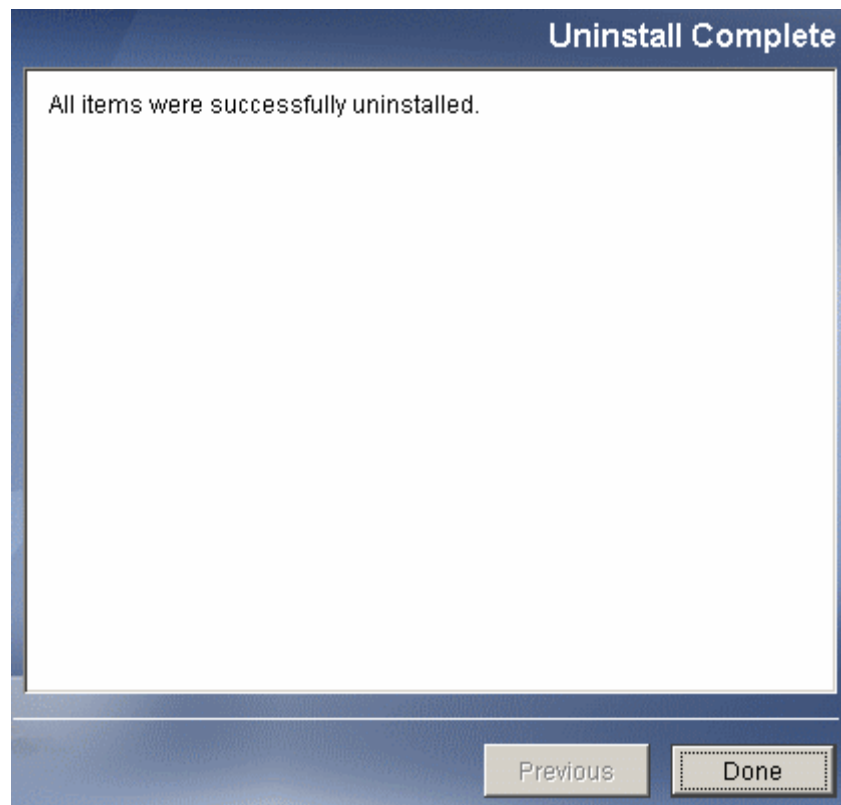


Figure 6-3: Uninstall Complete Window

- 3 Click **Done** to complete uninstallation.



NOTE

The following folders contain user data and will not be deleted after AlvariSTAR has been uninstalled: Firmware; Inventory and Migration.

6.1.1.1 Uninstalling the MySQL database

Uninstalling AlvariSTAR does not uninstall the MySQL database that was installed as a prerequisite and it should be uninstalled manually.



To uninstall the MySQL database:

- 1 Right-click on the AlvariSTAR icon in the Notification area (on the Task Bar) and Stop the service.
- 2 From the *Control Panel*, select the **Add/Remove Programs** utility, locate **MySQL** and click the **Remove** button.

- 3 Delete the MySQL folder in which the data files were stored. This folder can be found under C:\Documents and Settings\All Users\Application Data\MySQL Solaris OS

6.1.2 Unix Based OS



NOTE

Before uninstalling AlvariSTAR, it is recommended to backup the database.

- 1 Make sure the AlvariSTAR server is not running (see [Section 3.3.1](#)).
- 2 Open a Console session and logon as root.
- 3 Go to the directory on which AlvariSTAR was installed, e.g.,
/opt/AlvariSTAR/Uninstall_AlvariSTAR/

where **/opt/AlvariSTAR/** is the default directory on which AlvariSTAR was installed.

- 4 Run the script: **Uninstall_AlvariSTAR**

The *Uninstall AlvariSTAR* window is displayed.

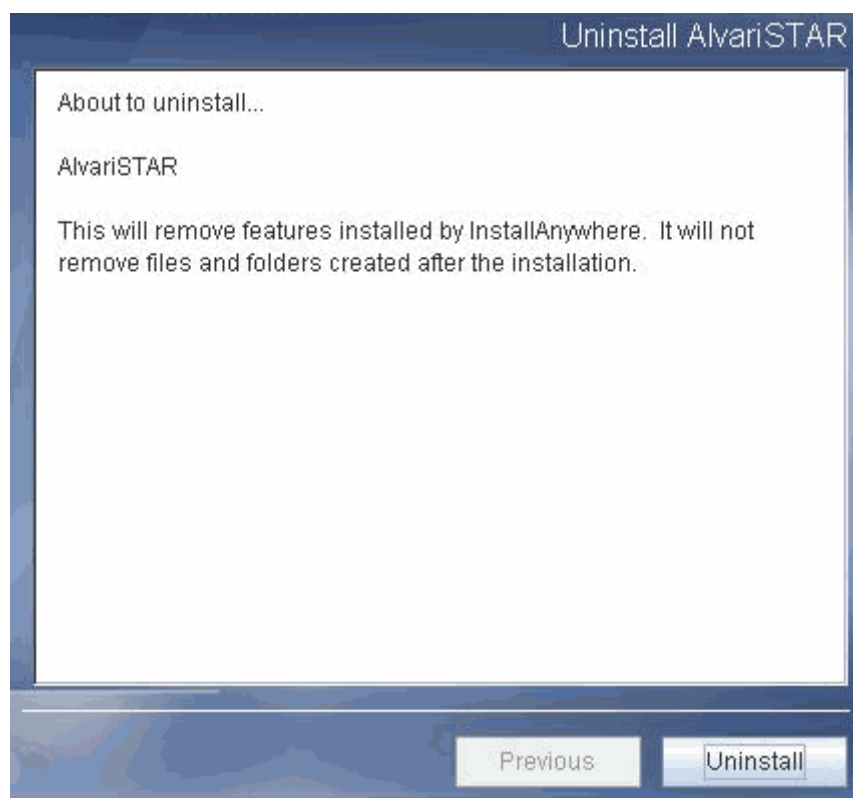


Figure 6-4: Uninstall AlvariSTAR Window

The *Uninstall AlvariSTAR* window is displayed.

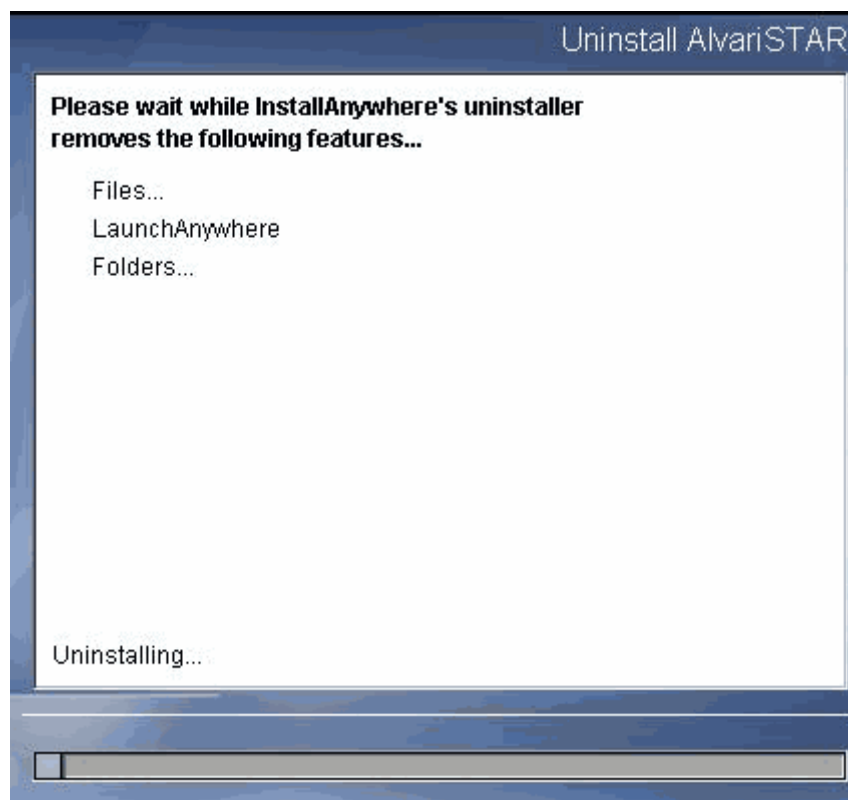


Figure 6-5: Uninstalling AlvariSTAR Window

Once all items have been successfully uninstalled the *Uninstall Complete* window is displayed.

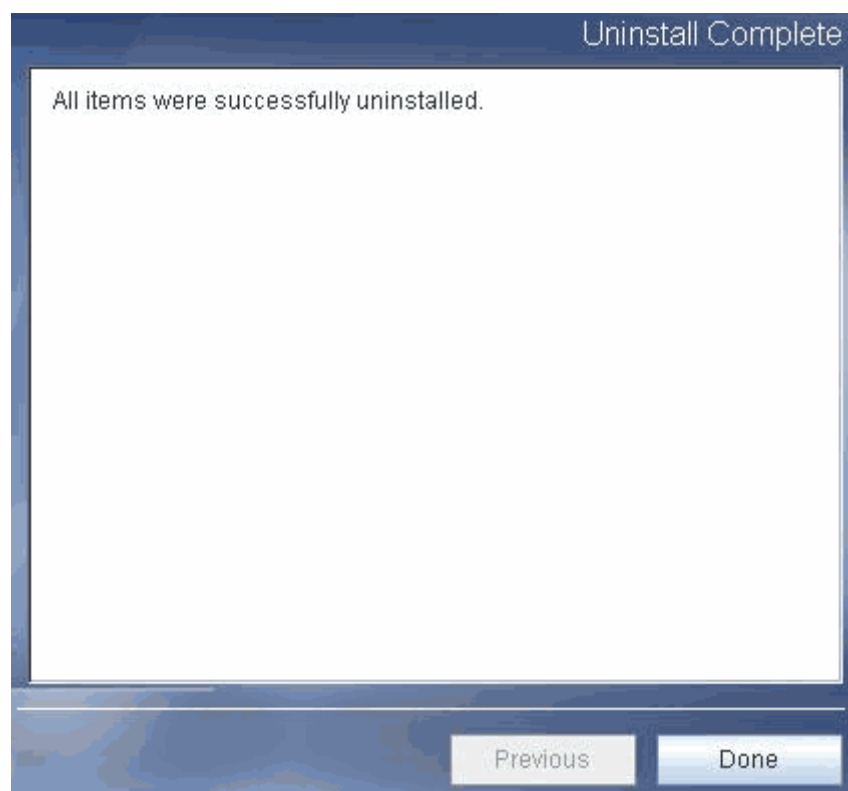


Figure 6-6: Uninstall Complete Window

- 5 Click **Done** to exit the uninstaller.



NOTE

The following 3 folders contain user data and will not be deleted after AlvariSTAR has been uninstalled: Firmware; Inventory and Migration.

6.2 Removing AlvariSTAR Data from Oracle

For an Oracle external installation, the AlvariSTAR uninstaller does not remove any of the AlvariSTAR data from the Oracle database used by the system. To remove the data without having to remove the whole Oracle instance do one of the following:

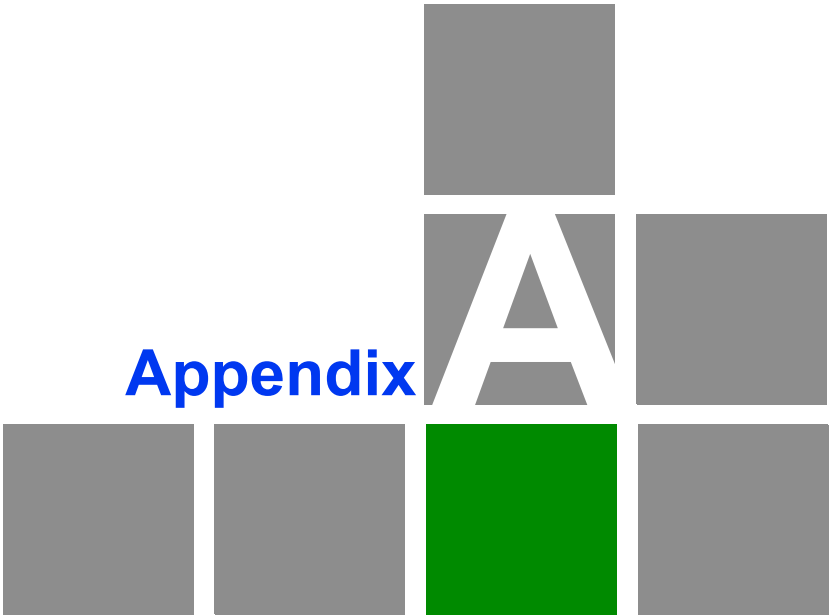
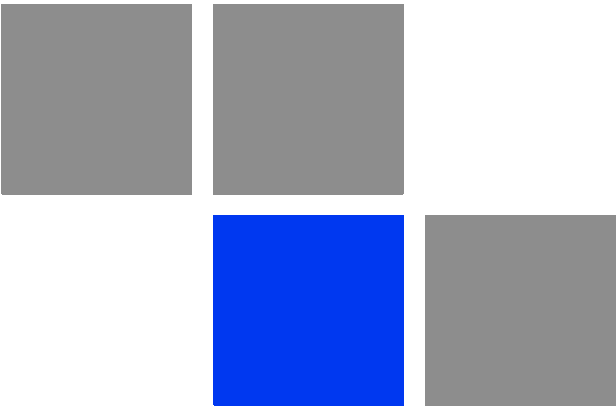
■ If you use Oracle DBA Studio:

- 1 Log on to the database using the system account in the Oracle DBA Studio application (see the Oracle documentation for more information on the DBA Studio tool).
- 2 Locate the user created by the AlvariSTAR installation under the Security > Users tree entry. Right click on the user and select Remove... Confirm the deletion of all owned data.

■ If you use SqlPlus to manage the database:

- 1 Log on to the database using the system account.
- 2 Execute the following command to drop the user created by the AlvariSTAR installation and all its associated data:

```
drop user <AlvariSTAR user> cascade;
```



Appendix



Migration Paths

In This Appendix:

- [“Migration from Version 3.5 and Later” on page 165](#)

A.1 Migration from Version 3.5 and Later

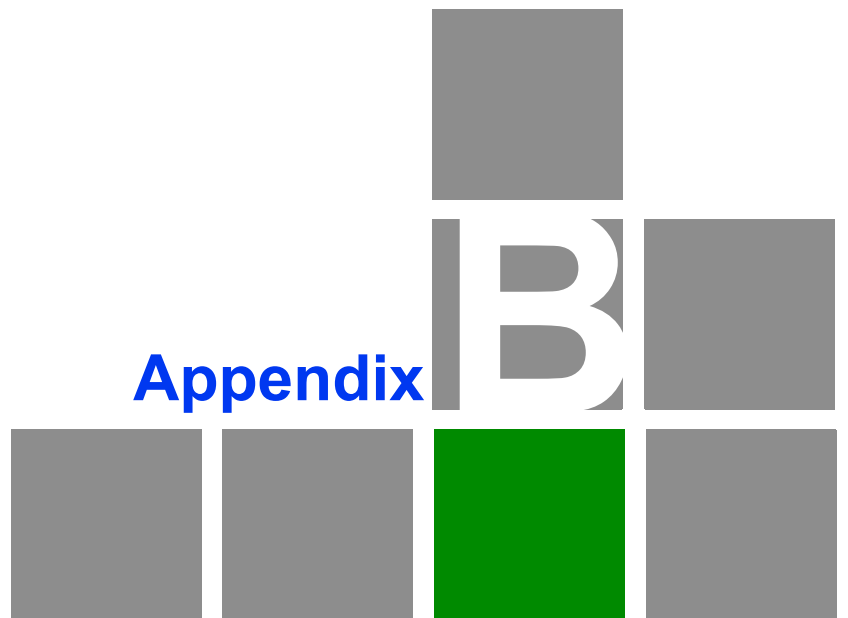
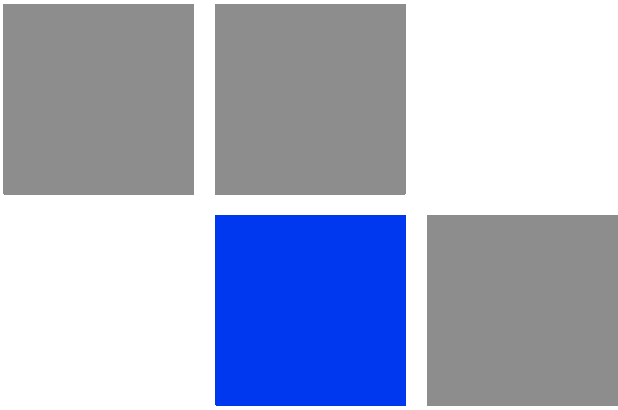
AlvariSTAR supports Oracle as its underlying database server. However for small/demo/trial networks one can also use MySQL with Windows Server. As a result, the migration of Windows based older AlvariSTAR versions to the current AlvariSTAR version involves migration of the database from MySQL to Oracle. For this purpose, a utility is available on the installation DVD.

Migration of versions older than 4.0 must go through 4.0 as a mandatory stage before migrating to the current version. For instance, to upgrade to version 4.5 from version 3.5 one must upgrade to version 4.0 first and from 4.0 to 4.5. For information on migrating to AlvariSTAR 4.0, see [Appendix B](#).

The following table outlines all possible migration paths - note the differences when using the "internal" Oracle (Int.) and "external" Oracle (Ext.) database.

Table A-1: AlvariSTAR Migration Paths

Upgrade Version	Legacy Version					
	3.5 MySQL	3.5 Ext. Oracle	4.0 MySQL	4.0 Ext. Oracle	4.1 MySQL	4.1 Ext. Oracle
3.5 MySQL	N/A	N/A	N/A	N/A	N/A	N/A
3.5 Ext. Oracle	N/A	N/A	N/A	N/A	N/A	N/A
4.0 MySQL	3.5 -> 4.0	N/A	N/A	N/A	N/A	N/A
4.0 Ext. Oracle	N/A	3.5 -> 4.0	N/A	N/A	N/A	N/A
4.1 MySQL	3.5 -> 4.1	N/A	4.0 -> 4.1	N/A	N/A	N/A
4.1 Ext. Oracle	N/A	3.5 -> 4.1	N/A	4.0 -> 4.1	N/A	N/A
4.5 Ext. Oracle	3.5 -> 4.0 4.0 -> 4.5 Manual migration using tool	3.5 -> 4.5	4.0 -> 4.5 Manual migration using tool	4.0 -> 4.5	4.1 -> 4.5 Manual migration using tool	4.1 -> 4.5
4.5 Int. Oracle	3.5->4.0 4.0->4.5 Manual migration using tool	N/A	4.0->4.5 Manual migration using tool	N/A	4.1->4.5 Manual migration using tool	N/A



Migrating from AlvariSTAR 3.5 to AlvariSTAR 4.0/4.1

In This Appendix:

- [“Security and Permissions” on page 168](#)
- [“Migration of Security Rules” on page 171](#)

B.1 Security and Permissions

AlvariSTAR 4.x includes improved LDAP based security features. When migrating from version 3.5 to version 4.x, the previous proprietary based system is mapped to the new LDAP based system. Three new default groups and three new default users are created. For more information refer to the *AlvariSTAR User Manual*.

[Table B-1](#) includes the full security mappings between the versions and behavioral changes due to the migration.

Table B-1: Security Mappings and Behavioral Changes

3.5 Functional Permissions		4.x Functional Permissions	
Configure Backup Manager	delete execute read	Delete Export View	Filemanager
Configure Contacts	add write delete read	New Edit Delete View	ContactManager
Configure Equipment	add write delete read execute	New Edit Delete View Configure,CutThrough	EquipmentManager
Configure Events	write read	Ack,UnAck,Clear View	EventManager
Configure Licenses	add write read	Add Activate View	LicenseManager
Configure Locations	add write delete read	New Edit Delete OpenMap,View	LocationManager

Table B-1: Security Mappings and Behavioral Changes

3.5 Functional Permissions		4.x Functional Permissions	
Configure Subscribers	add write delete read	New Edit Delete View	SubscriberManager
Configure Services	add write read	New Edit View	ServiceManager
Configure Service Profiles	add write delete read execute	New Edit Delete View Configure	ServiceProfileManager
Configure Tasks	add write delete read execute	New Edit Delete View Run,Abort,Schedule	TaskManager
Northbound System Manager	add write delete read	New Edit Delete View	EventForwardingNBIManager
User Monitor	execute read	Kill view	UserSessionManager
Configure Audit Trail	execute read	Export View	AuditLogManager
Manage Network	add write delete read	New Edit Delete View	DiscoverySettings

Table B-1: Security Mappings and Behavioral Changes

3.5 Functional Permissions		4.x Functional Permissions	
Manage Permissions	add write delete read	New Edit Delete View	UserManager, UserProfileManager

B.2 Migration of Security Rules

- In version 4.x, User and Group names are in lower case letters only.
 - » If there are users/groups with upper case letters, they will be converted to lower case.
 - » If there are the same users/groups, one with upper case letters and one with lower case letters, only the user/group with lower case letters will be migrated.
 - » If there are two users with the same name, but one with upper case letters (e.g Test) from one group(e.g Administrators) and another with lower case letters (e.g test) from another group (e.g Operators), only the user with lower case letters will be migrated. The user will be associated with both the profiles (e.g Administrators and Operators).
 - » If there are two groups with the same name, one with upper case letter and the other with lower case letters and each of the groups has different permissions, only the group with the lower case letters will be migrated and the permissions from both the groups will be combined.
- All passwords will be reset to be the same as User ID.
- A user who has no functional security defined will see an empty main navigation tree.
- All of the default 3.5 users and default 3.5 groups will be migrated.
- A user that is not associated with a group will not be migrated.
- A user that has both group permissions and user permissions will retain only group permissions after migration